### U.S. Army Combat Support Training Center, Camp Parks Site Investigation Report, PRFTA 13 Contract # W911SO-04-F0017

#### **Submitted to:**

#### **United States Army Environmental Center**

Northern Regional Contracting Center Attn: Renzer Brown Building 2798 Harrison Loop complex Fort Eustis, Virginia 23604





#### **Contracted by:**

Northern Regional Contracting Center Fort Eustis, VA 23604

KEMRON Environmental Services, Inc. 1359-A Ellsworth Industrial Boulevard Atlanta, GA 30318





#### Site Investigation Report Former Tank Farm (PRFTA 13) U.S. Army Combat Support Training Center, Camp Parks (CTSC) Dublin, California

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MACTEC Project No. 3618048128-04

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#### 1.0 INTRODUCTION

This Site Investigation Report was prepared by MACTEC Engineering and Consulting, Inc. (MACTEC) for KEMRON Environmental Services (KEMRON) on behalf of the U.S. Army Environmental Center (USAEC) to describe the results of the field investigation conducted in June and July 2005 to further characterize the subsurface conditions at the Former Tank Farm (PRFTA 13), U.S. Army Combat Support Training Center (CSTC), Camp parks (formerly the Parks Reserve Forces Training Area [PRFTA]) in the city of Dublin, California (Plate 1). The work was performed according to the approved Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) (*MACTEC*, 2005a, b). The purpose of the investigation was to provide suitable site characterization in order to develop appropriate corrective actions and monitoring measures.

#### 1.1 Background

The CSTC includes an area of about 2,500 acres, with a 487-acre cantonment area, in the eastern portion of the City of Dublin, California. PRFTA 13, the subject of this investigation, was reportedly used for fuel storage and dispensing. Fuel was reportedly stored in aboveground storage tanks (AST) and possibly in underground storage tanks (USTs). Aerial photographs of this location from 1957 and 1976 show three aboveground storage tanks (ASTs) that were located in the same configuration as three ASTs that were removed in 1993. Recent geophysical surveys did not identify any USTs. Previous site studies have indicated the potential subsurface presence of heavy metals, diesel, and related compounds that may be associated with the former storage tanks (*USACHPMM*, 2002b).

#### 1.2 Description of Environmental Concerns

There are no documented spills at PRFTA 13; however, excavation of a utility trench in 2001 led to the discovery of diesel in subsurface areas that extended to the depth of groundwater. Subsequent investigations identified the presence of diesel, phenanthrene, fluorene, arsenic, lead, and barium, in the subsurface, and indicated the presence of diesel in groundwater up to 200 feet away from the apparent source area. Sample analysis indicated that diesel concentrations in groundwater ranged from 120 to 9,800 micrograms per liter ( $\mu$ g/L). Previous investigations and results are described in greater detail in Section 3.0.

#### 1.3 Investigation Objectives

The overall objective of this investigation was to sufficiently characterize site conditions to enable design and implementation of remedial measures in order to mitigate the contamination that is present in the subsurface at PRFTA 13, and obtain closure of the site. The objectives of the investigation were to:

- Identify the vertical and lateral extent of soil containing Total Petroleum Hydrocarbons diesel range (TPHd) at concentrations above 100 milligrams per kilogram (mg/kg).
- Identify the lateral extent of groundwater containing TPH-d at concentrations above  $100 \mu g/L$ .
- Ascertain whether the first occurrence of groundwater is a perched, local feature, or hydraulically connected to deeper groundwater.
- 4 Ascertain accurate groundwater flow and gradient.
- 5 Identify whether additional source material should be removed from soil or groundwater.





- Identify whether suitable conditions exist to provide effective natural attenuation of diesel in soil and groundwater.
- Abandon existing damaged monitoring points to prevent migration of surface materials into the subsurface.

Installation of permanent monitoring wells and collection of current water levels was also identified as an objective in the SAP; however, based on discussions with the RWQCB in September 2005, this activity was deferred until after completion of soil removal action.





#### 2.0 SITE BACKGROUND

Camp Parks includes an area of approximately 2,500 acres of flat to rolling terrain in the eastern portion of Dublin, California and includes acreage in both Alameda and Contra Costa Counties. The CSTC provides facilities for maintaining the readiness of Reserve forces for all four military services. The cantonment area of the CSTC consists of approximately 500 acres of road networks and infrastructure, and the remaining areas are primarily open grasslands that are used for training and firing ranges.

#### 2.1 General Land Use

The land west of the CSTC is currently in residential use, while the land use to the east and south of the cantonment area is mixed industrial and residential, and the area to the north of the CSTC is currently under residential development. Land use to the east and south of the installation's cantonment area is mixed industrial and residential, and the area to the north of the cantonment area is undeveloped. There are four correctional facilities located northeast of the cantonment area; these consist of the Federal Correctional Institution, the Federal Detention Center, the Federal Prison Camp-Dublin, and the Alameda County Santa Rita Jail. The area immediately adjacent to PRFTA 13 on the north is a mix of open space, a parking/storage area, and 4<sup>th</sup> Street.

#### 2.2 Physical Setting

The topography at PRFTA 13 is flat, with a depth to shallow groundwater at 8 to 15 feet bgs. The groundwater has a very slight gradient and flows in a southwesterly direction. The shallow groundwater at the site is not used for domestic purposes; drinking water is supplied to the installation by the Alameda County Flood Control and Water Conservation District, Zone 7, from the Del Valle Reservoir and municipal water wells several miles south of PRFTA 13 in the city of Pleasanton. The Pleasanton wells have screened intervals in the range of 103 to 800 feet bgs. The presence of abundant clay layers at the site found during the Phase 1 and 2 PRFTA 13 investigations indicate there is little or no interconnection between the shallow groundwater and the deeper aquifers that supply water to the area (*USACHPPM*, 2002a and 2002b).

#### 2.2.1 Surface Water

Surface water features at PRFTA 13 are shown on Plate 2. Within the cantonment area, storm water is collected by a series of man-made ditches that flow off site to the southwest. A drainage ditch runs along the northwestern boundary of PRFTA 13 and only flows during storm events. Preliminary site measurements indicate that the bottom of the ditch is shallower than the depth to groundwater. There are no other surface water features in the vicinity of the Former Tank Farm. The nearest perennial surface water feature is Tassajara Creek which flows southward along the eastern boundary of CSTC. This creek is over a mile from the Former Tank Farm and would not expect to be affected by runoff or shallow groundwater from the site.





#### 2.2.2 Sediment

Soils in the immediate vicinity of the Former Tank Farm site are Sunnyvale clay loam over clay (*USACHPPM*, 2002b). The surface clays extend to approximately 7 feet bgs. The clay loam is characterized as gray to black in color, slightly calcareous, with low permeability. The surface clays are underlain by a two-foot thick lens of brown to dark brown silty clay with occasional mottling. Water bearing fine sandy clay to clayey sand underlies the silty clays from approximately 9 feet bgs to 15 feet bgs, which was the extent of the depth of the boring installed during the Phase 2 investigation. In the June 2005 investigation two additional soil borings (P13SCGW07, and P13SCGW15) were drilled to a depth of thirty feet to further characterize the subsurface conditions below the water bearing sandy clay to clayey sand. Based on these borings, the clayey sand layer is underlain by additional olive brown clay to a depth of thirty feet.

#### 2.2.3 Hydrogeology

Groundwater in the Dublin sub-basin is both unconfined and confined (*USACHPPM*, 2002). In the shallow, unconfined aquifers, the depth to groundwater is about 20 feet bgs. Generally, the shallow groundwater has a potentiometric surface that slopes southward at about 0.004 ft/ft. The potentiometric surface of the deeper, confined aquifers is characteristic of a multiple aquifer system. In the northern part of the sub-basin, groundwater occurs at about 80 feet bgs and slopes southward at about 0.006 ft/ft. In the southern part of the sub-basin, the groundwater occurs at about 50 feet and slopes southward at about 0.003 ft/ft.

Review of drilling logs from PRFTA 13 borings indicate that the uppermost 7 to 10 feet of soil are composed primarily of stiff gray and brown clays. A silty sand layer underlying the stiff clays comprises the uppermost water-bearing zone. The silty sand layer is underlain by additional clay, which may create a perched condition for this water-bearing zone. Depths to water measured in February 2001 and November 2004 indicated static groundwater at 10 to 12 feet bgs, which is deeper than the bottom of the adjacent drainage channel as indicated by preliminary site measurements. Calculations of groundwater elevations indicate that groundwater flow in the shallow water-bearing zone is generally to the south-southwest at an apparent gradient of 0.02 ft/ft (Plate 2).

#### 2.2.4 Geology

The CSTC is located in the Livermore Valley, the most prominent valley within the Hamilton-Mt. Diablo Range in Central California. The valley is bounded on the west by the Pleasanton Ridge and on the east by the Altamont Hills. The Pleasanton Ridge and Altamont Hills consist of Jurassic to Cretaceous sedimentary rocks known as the Great Valley Sequence. The southern CSTC (Area of PRFTA 13) is underlain by Quaternary alluvium and the northern RFTA is underlain by undifferentiated Pliocene formations (*USACHPPM*, 2002). The Quaternary alluvium is classified as unconsolidated water-bearing deposits consisting of stream and lake deposited sediments characterized by various mixtures of gravel, sand, silt, and clay. The undifferentiated Pliocene formations are classified as semi-consolidated to consolidated, and are essentially not water-bearing rocks that consist of continental conglomerate, sandstone, claystone, tuff, and limestone lentils. Soils at Camp Parks are of the Altamont-Diablo association except the Tassajara Creekand Alamo Creek flood plains that consist of the Clear Lake-Cropley association (*USDA*, 1966, 1977 in *USACHPPM*, 2002). The majority of the soils at CSTC are of the Diablo Clay Series and the Clear Lake Clay Series that are characterized as gray to brownish-gray clays with low permeabilities.





#### 2.3 PRFTA 13 Description

#### **Description**

The former tank farm site is a flat, grassy, triangular area located in the southern portion of the CSTC southwest of the intersection of 4<sup>th</sup> Street and Fernandez Avenue, and is bounded on the east by Fernandez Avenue, on the south by a motor pool area, and on the northwest by a man-made drainage channel. Plate 2 illustrates the site location and site features, and the locations of existing soil sampling points. Plate 4 shows the locations of existing and abandoned groundwater sampling points.

#### **Operational History**

PRFTA 13 was used as a fuel storage and dispensing area from the 1940s into the 1990s. Historical maps and drawings reportedly indicate various configurations of fuel storage through time (*USACHPPM*, 2002); although review of aerial photographs indicates that the site configuration was unchanged between at least 1957 and 1976. The site reportedly contained both USTs and ASTs, and stored diesel as well as gasoline; although no USTs have been identified. A memorandum dated 1993 did state that "the abandoned POL farm... consists of three above-ground tanks, two of which were below ground originally – a pump station, a concrete storage pad and various pipelines above and below ground" (*USACHPPM*, 2003). Historical records indicate that there were five ASTs onsite in the 1940s, but only three remained in 1993 when they were reportedly removed. It is unknown if, or when, any USTs were removed. However, a geophysical survey performed in 2003 detected no anomalies having the magnetic profile of a UST (*Bobbitt*, 2004). The configuration of known former tanks, piping, and other features are illustrated on Plate 3.





#### 3.0 PREVIOUS PRFTA 13 ENVIRONMENTAL INVESTIGATIONS

During the fall of 2001, workers installing a new sewer line approximately 100 feet east of the former tank farm noted fuel odors, and soil samples from both the utility trench and excavation stockpiles were collected and analyzed. Five of the samples were analyzed for total petroleum hydrocarbons (TPH) in the diesel range (TPHd) and TPH in the range of oil and grease (TPH-O&G), and one sample from the trench was analyzed for TPH-O&G, TPHd, and volatile organic compounds (VOCs). No VOCs were detected, and TPH-O&G were not detected above a concentration of 100 mg/kg. However, TPHd was detected at concentrations above 100 mg/kg. Analysis indicated the presence of diesel in samples collected from 1.5 to 3 feet below ground surface (bgs) at concentrations less than 100 mg/kg, and samples collected from 8 to 12 feet bgs exhibited diesel concentrations ranging from 140 to 17,000 mg/kg. At the time of the sampling, the depth to groundwater in a nearby well was 11.5 feet bgs, which indicated that the soil samples collected from 12 feet bgs were in the saturated zone and reflected concentrations of diesel at, or near, the water table.

During May 2002, a Phase 1 investigation was performed at PRFTA 13 (*USACHPPM*, 2002a). The results of this investigation indicated an area of shallow soil contamination (less than 5 feet bgs) near the former dispensing area, with diesel concentrations of about 100 mg/kg at 4 feet bgs. The cause of this contamination was thought to have been from spillage and overfilling.

Analyses of deeper soils (greater than 8 feet bgs) further from the former dispensing area indicated two areas of contamination. Within both areas, the impacted soils were present from 8 feet bgs to the water table, which was estimated to be at a depth of 11 feet bgs. Concentrations of TPHd at 8 feet bgs were up to 11,000 mg/kg. No contamination was found in surface soils within these two impacted areas, which suggested that contaminant sources could have been USTs and/or piping.

Analysis of groundwater samples from shallow temporary wells installed during the Phase 1 investigation indicated that hydrocarbons were present in groundwater up to 200 feet southwest (downgradient) of the former tank farm. Concentrations of TPHd in well samples ranged from 120 to 9,800  $\mu$ g/L. An additional groundwater sample was collected in August 2002 from Monitoring Well TFMW-9 (Plate 2), which was the well with the highest TPHd concentrations from the previous sampling. The August sample was analyzed for semi-volatile organic compounds (SVOCs), VOCs, and 8 metals. It is not know if this sample was filtered. Analytical results indicated the presence of fluorine at 4.1  $\mu$ g/L, phenanthrene at 6.8  $\mu$ g/L, lead at 5.6  $\mu$ g/L, arsenic at 160  $\mu$ g/L, and barium at 360  $\mu$ g/L. No VOCs were detected. In October 2002, a Phase 2 investigation (*USACHPPM*, 2002b) was conducted at the site to assess the lateral extent of groundwater contamination and the lateral extent of impacted soils on the east border of the former tank farm.

Results of the investigation indicated that soil contamination was not present east of the former sewer trench, and no new areas of soil contamination were found. It was estimated that the volume of contaminated soils requiring remediation was approximately 600 cubic yards (cy). Groundwater sampling in existing and new wells indicated that shallow groundwater was only impacted within an area of approximately 300 feet of the source area. The findings also indicated that the shallow groundwater contamination was moving slowly in a southwesterly direction.





Additional stockpile soil sampling was performed by the CSTC in March 2004 to characterize the existing stockpiles that were generated from the sewer line excavation. Thirty-two discrete soil samples were collected and submitted as eight composite samples to characterize the 800 cubic yard stockpile. Analysis detected TPHd in seven of the samples at concentrations of less than 10 mg/kg and in one sample at a concentration of 110 mg/kg.

A geophysical survey to identify potential UST locations was performed in 2003 for 60 acres of the CSTC south of 4<sup>th</sup> Street that included PRFTA 13. Of the eleven magnetic anomalies identified at PRFTA 13, four were subsequently identified as unrelated to USTs, and five were considered "unknown," although none of the anomalies had a magnetic configuration matching that of a UST (*Bobbitt*, 2004). During the winter of 2005, eight of the anomalies were investigated by excavating. Two of the excavations revealed issues requiring additional investigation. One excavation revealed a concrete vault of unknown purpose, and the other revealed hydrocarbon contamination at a depth of approximately 2 feet. Analytical results from previous investigations are summarized in Tables 1 through 5.

Analytical results from groundwater sampling and corresponding spatial distribution at the site are also shown on Plate 4, which illustrates the current understanding of the aerial extent of diesel contamination in groundwater.





#### 4.0 FIELD INVESTIGATION JUNE 2005

The following sections describe the procedures and equipment used for the June 2005 field investigation.

#### 4.1 Field and Laboratory Equipment and Procedures

Geophysical clearance for utilities or other obstructions including USA clearance was completed prior to any drilling activities. All suspect utilities or other anomalies were identified, and if necessary the borings were relocated to the nearest suitable alternative area. The clearance records are presented in Appendix A.

Thirteen soil borings were installed to a depth of fifteen feet (P13SCSB01 through P13SCSB13) using truck-mounted direct-push drilling equipment (Plate 3). The direct-push method drills by hydraulically advancing a stainless-steel core barrel to the depth desired. The core barrel encases a clear acetate liner that is extracted to log soils. All borings were continuously sampled for lithologic information. Soils were lithologically logged following ASTM Method D 2488-00 procedures. Copies of the logs are presented in Appendix B.

Soil samples collected at intervals of one, five and ten feet bgs were submitted to Columbia Analytical Laboratory in Redding, California for TPHd analysis using EPA Test Method 8015B. Two additional soil samples were collected at P13SCGW11 and P13SCGW14 based on visual observations made in the field (at depths of 11 feet bgs and 8 feet bgs respectively)(Plate 3). These samples were also submitted for TPHd analysis using EPA Test Method 8015B. All borings were permitted with Zone 7 Water Agency. Copies of the permits are provided as Appendix C.

#### 4.2 Groundwater Sampling

Groundwater samples were collected from sixteen soil borings (P13SCGW01 through P13SCGW16) (Plate 4). Groundwater samples were collected using either a HydroPunch sampling tool as described below, or through a 2-inch PVC screen lowered into the borehole. Samples from P13SCGW07 and P13SCGW10 through P13SCGW16 were collected through the HydroPunch. The other samples were collected through the PVC screen. Once the targeted sampling depth was reached, the HydroPunch tool was threaded onto a steel drive pipe and pushed several feet into the saturated formation. The drive pipe was then pulled upward to open the inlet of the sampler, allowing groundwater to flow into the screened sample chamber. Samples were collected from the sample chamber using a disposable bottom-emptying bailer, or peristaltic pump and decanted into Laboratory supplied bottles in accordance with protocols described in the Quality Assurance Project Plan (QAPP) for TPHd.

Deviations from the SAP included the following. P13SCGW14 was originally scheduled to go as deep as thirty feet for lithology only, but the sample from eight to fifteen feet had both visual and strong hydrocarbon odor, and it was decided to not continue to thirty feet. Based on the evidence of hydrocarbons in the soil at 8 feet, a soil sample was collected in the vicinity of this boring by advancing a separate boring two feet to the east of P13SCGW14 to a depth of eight feet. The thirty-foot boring was relocated west from P13SCGW14 to P13SCGW15. One other soil sample was collected adjacent to a





HydroPunch boring (P13SCGW11) at eleven feet based on the visual and strong hydrocarbon odor in the soil from eleven to twelve feet.

All borings were permitted through Zone 7 Water Agency. Copies of the permits are included in Appendix C.

#### 4.3 Well Destruction

The six existing damaged monitoring wells TFMW2, TFMW4, TFMW7, TFMW8, TFMW9, and TFMW10 (Plate 4) were properly destroyed in accordance with the Zone 7 Water Agency requirements using a hollow stem rotary auger drill rig. A GPS unit was used to locate TFMW2, TFMW7, and TFMW9 that were broken off below ground surface. These wells were over drilled to a depth of 20 feet and grouted up through the augers using a tremie pipe with a bentonite/cement grout to the surface. All soil cuttings and PVC debris generated were placed in 55-gallon DOT drums. A composite sample of these drill cuttings were submitted to a laboratory for characterization analysis. After receipt of the analytical results, the contents were disposed in accordance with federal, state and local regulatory requirements. A Well Completion Report was filed with the Water Resources Board in Sacramento including the well name, location, and the lithologic descriptions.

#### 4.4 Investigation-Derived Waste Handling

All drill cuttings and decontamination rinsate was properly contained and temporarily stored onsite pending waste characterization and offsite disposal. Decontamination rinsate was placed in a DOT-approved steel drum, and soil cuttings derived from the drilling activities was placed in DOT-approved steel drums. When all drilling and sampling activities were completed, a sample of the rinsate and a composite sample of drill cuttings were submitted to a Columbia Analytical laboratory for characterization analysis. After receipt of the analytical results, impacted soil and wastewater were disposed at a facility that was appropriately permitted for the materials to be received.

#### 4.5 Field Quality Control Measures

Quality control measures were implemented for all field work to maintain the quality and reliability of the collected data. For water sampling, duplicate samples were collected from P13SCGW09 and P13SCGW13 (Plate 4). Equipment blanks were collected from soil sampling equipment at P13SCSB04, and P13SCSB07, (Plate 3) and one equipment blank was collected from the Hydropunch sampling equipment at P13SCGW11 (Plate 4).

#### 4.6 Equipment Decontamination

All down-hole boring equipment and reusable sampling equipment that came into contact with potential contaminated soil or water was decontaminated before and after use, and/or between uses at different sampling locations. Decontamination consisted of steam-cleaning or washing using a phosphate-free detergent wash and a distilled deionized-water rinse. All decontamination rinsate was contained in 55-gallon DOT approved drums and disposed as described in Section 4.4.





#### 4.7 Deviations from the Sampling and Analysis Plan

Installation of permanent groundwater monitoring wells was not completed at this time based on discussions with the RWQCB. It was decided that excavation of TPH impacted soil should be completed first. Following the soil excavation, a groundwater monitoring network will be established based on the results of the removal action. This will eliminate the need for installation of monitoring wells that could require destruction prior to beginning soil excavation efforts. The selection of monitoring locations and installation of permanent monitoring wells will be discussed in the Corrective Action Plan for this site.

Two additional soil samples were also collected during the field investigation based on visual evidence of hydrocarbon impacts. Collection of these samples is discussed above in Section 4.1.





#### 5.0 FIELD INVESTIGATION RESULTS

#### 5.1 Lithology Results

The results of the lithology investigation are based on continuous core logging of 29 soil borings. Copies of the soil borings are provided in Appendix B. Two borings were drilled to a depth of 30 feet, and the remaining borings were drilled to about 10 feet. A geologic fence diagram of the site was created based on the results of the lithologic logging (Plate 5). A description of the site lithology is provided below.

Fill material consisting of a grayish brown clayey sand and gravel reworked in some areas with the underlying gray to brown dense fat clay extends from the surface to about two to three feet bgs. This underlying gray to brown clay continues across this site with various percentages of silt and fine sand to a depth of eight to twelve feet. Below this dense clay lies a silty to clayey sand. This sand layer varies in thickness throughout this site from two to three feet. Underlying these silty/clayey sands is a dense olive brown fat clay that extended to 30 feet in both borings. No additional water bearing lenses were identified between about 12 feet and 30 feet bgs.

#### 5.2 Analytical Results

This section provides the analytical results for the soil and groundwater samples collected during this investigation. All data were validated in accordance with the QAPP. No data were rejected as a result of this validation.

#### 5.2.1 Soil Sampling

Forty-six soil samples were collected from fifteen locations at PRFTA-13 (Plate 3). The analytical results are provided in Table 6. TPHd concentrations ranged from 2.5 mg/kg at P13SCSB09 to 2,500 mg/kg at P13SCSB08. Eight soil samples exceeded the RWQCB environmental screening level of 100 mg/kg. The highest TPHd concentrations were located along the eastern side of the site, just to the west of Fernandez Ave. The four locations along Fernandez Avenue (P13SCSB08 through P13SCSB11) also had higher concentrations of TPHd in the shallow samples (at surface, two and five feet.). Elevated TPHd was also detected at deeper depths (eight to twelve feet) in the downgradient direction on the south side of the former above ground storage features (P13SCGW11, and P13SCGW13). The soil and groundwater samples collected near and around the former above ground storage features and towards the north end of PRFTA 13 site showed only low to non-detect concentrations of TPHd. TPHd was not detected in samples collected near a concrete structure excavated in early 2005 as part of the validation efforts associated with the geophysical survey competed by Bobbit in 2004 (*Bobbit*, 2004).

#### 5.2.2 Hydropunch Sampling

Sixteen HydroPunch groundwater samples were collected within the perched groundwater present at the site. TPHd concentrations ranged from 0.09 mg/l at P13SCGW04 to 650 mg/l at P13SCGW13 (Plate 4). Table 7 presents the TPHd results for each location. Hydrocarbon odors were noted during the investigation in borings P13SCGW10, P13SCGW11, P13SCGW13 P13SCGW14. A sheen was noted on groundwater sample collected from P13SCGW10.





#### **5.3** Nature and Extent of Contamination

This section describes the nature and extent of elevated diesel concentrations in soil and groundwater.

#### 5.3.1 Soil

During the most recent investigation (June 2005), TPHd was reported in four borings at concentrations greater than the soil protection screening level of 100 mg/kg (P13SCSB08, P13SCSB09, P13SCSB10, and P13SCSB11). Soil results from the most recent investigation are included in Table 6. Using the most recent soil data as well as historical data (Tables 1 through 6), MACTEC constructed a site map depicting the areas and depths of TPHd impacted soils above the soil protection screening level (Plate 4). This Plate depicts the impacted shallow soil areas (less than 5 feet bgs) from surface spills located near and south of the former dispenser islands, the impacted soil areas (0 to 10 feet bgs) present from the former pipelines, and the deeper impacted soils (8 to 12 feet bgs) located downgradient of the pipelines and dispensers.

As stated above, current data indicates three areas where TPHd is present in soil above the RWQCB Environmental Screening Level (ESL) of 100 mg/kg, and one area where visual evidence indicated the potential for TPHd above the ESL. The ESL for soil of 100 mg/kg was selected as a guide for site characterization purposes. The four areas of the site where TPHd impacted soil is present are described below:

- 1. Dispensing Area Previous investigations have indicated that elevated diesel concentrations in soil at the dispensing area and immediately south of the dispensing area are limited to soil within 5 feet of the surface. The aerial extent of the shallow contamination is shown on Plate 3.
- 2. Former Pipelines Results of sampling adjacent to pipelines at the dispensing area and southeast of the dispensing area indicate that elevated TPHd concentrations are present along the pipeline running along Fernandez Avenue from about 2 feet bgs at Boring P13SCSB08 to the water table (Plate 3)
- 3. Deeper Zone Results of previous sampling downgradient from the dispensing area and pipeline indicate an area of deeper TPHd impacted soil ranging from about 8 to 12 feet bgs. It appears that this area of impacted soil is the result of transport within the perched groundwater and changes in water table elevation due to seasonal water level variations. Based on analytical results reported from the groundwater sample collected from P13SCGW13 and the soil sample collected at 11 feet bgs from P13SCGW11, this deeper zone of soil contamination may extend further south from the source area than depicted (Plate 4). It does not appear to extend to the southwest much past the fence based on the significantly lower TPHd concentration detected in groundwater at TFMW15.
- 4. Pad A Although the concentrations collected in the soil sample were below the ESL, the results of the Hydro Punch sample indicate the potential for additional soil impacts.





#### 5.3.2 Groundwater

TPHd was detected at concentrations greater than the groundwater ESL of 0.1 mg/l in all but three of the HydroPunch samples collected in June 2005. The samples that did not exceed the ESL of 0.1 mg/l were collected upgradient and cross-gradient from the suspected source area (P13SCGW01, P13SCGW03, and P13SCGW04). It should be noted that one upgradient location P13SCGW02 did contain TPHd at 0.16 mg/l, which is just above the ESL.

The highest TPHd concentrations were detected in samples collected downgradient of the suspected source area, and in the location of former Tank A. Downgradient concentrations ranged from a high of 650 mg/l to 0.12 mg/l. The lower concentrations were found in samples collected further downgradient, although some higher concentrations were also detected in the downgradient direction (P13SCGW08 and P13SCGW06 at 0.54 and 0.56 mg/l). It should be noted that there are other potential sources of contamination in the downgradient direction. The potential sources include an oil water separator, a washrack, and an oil drainage pit (Plate 3).

The highest groundwater result is suspect, as a duplicate sample collected at the same location at the same time was reported with a result more than forty times less than that reported for the original sample (15 mg/l versus 650 mg/l).

Plate 5 shows the location and extent of the groundwater contamination based on June 2005 HydroPunch data. As illustrated, the groundwater plume extends southwest from the assumed source area and the area around Tank Pad A.





#### 6.0 CONCEPTUAL SITE MODEL

The following subsections describe the current site conceptual model, which is based on the data collected from this and previous investigations. Plate 6 presents a diagram of the site showing the potential source areas and potential migration pathways.

#### 6.1 Potential Migration Pathways

Groundwater is the primary migration pathway for TPHd away from the source area as shown on Plate 6. The potential groundwater pathway, however, is currently incomplete because the shallow groundwater is not used by human receptors. No use of this shallow groundwater is expected in the future.

Results of previous sampling downgradient from the identified potential source areas (dispensing area and shallow pipelines) indicate an area of deeper TPHd impacted soil ranging from about 8 to 12 feet bgs. It appears that this impacted soil zone is the result of the transport within the perched groundwater and changes in water table elevation due to seasonal water level variations.

#### **6.2** Potential Receptors

PRFTA 13 is currently an open field. No surface soil impact has been identified; therefore, no current exposure to humans has been identified. The potential for human exposure on this site is possible during the construction stages as construction workers excavate soil and come in contact with sub-surface soil contaminants currently in place. It is possible that impacts to ecological receptors that burrow into the ground could occur.





#### 7.0 CONCLUSIONS AND RECOMMENDATIONS

#### 7.1 Conclusions

Based on the analytical data collected in the Phase 1 (*USACHPPM*, 2002a), Phase 2 (*USACHPPM*, 2002b) and the June 2005 investigation the following conclusions concerning the distribution of diesel contamination in soil and groundwater be made:

#### Soil

- TPHd impacted shallow soil is present near the former dispensing area. This appears to be a source area for deeper soil impacts seen at the site.
- TPHd impacted soil is also present adjacent to former pipelines that run along the Fernandez Avenue.
- TPHd impacted soil is present at deeper depths (8 to 12 feet) in soil downgradient of the dispensing area. The presence of TPHd in soil at depth, but not in the shallow soils suggests that the TPHd migrated from the shallow soil downward to the perched groundwater lens where it was transported further downgradient of the source area. It is suspected that the seasonal variations in the water table resulted in a smear zone of diesel at the water table. The extent of the deeper contamination has not been fully characterized.

#### Groundwater

- THPd impacted groundwater is present at concentrations above the ESL of 0.1 mg/l from the northern portion of the former tank farm, south at least 800 feet from the suspected source area.
- The highest TPHd concentrations were identified in HydroPunch locations downgradient from the suspected source area (P13SCGW13, P13SCGW10 and P13SCGW11) and from the sample collected at Pad A (P13SCGW14).
- It appears that TPHd is being transported within the perched groundwater from the suspected source area in the downgradient direction.
- The results of lithologic sampling at this site indicate that groundwater occurs in a perched zone within the silty to clayey sands present at about 8 to 13 feet bgs. Soil beneath this layer was dry to moist based on sampling of the two 30 foot borings.

#### 7.2 Recommendations

- Based on the results of this sampling program and previous sampling programs, removal of TPHd impacted soil is recommended. A Corrective Action Plan will be submitted detailing the proposed removal action.
- Following removal of TPHd impacted soil, a groundwater monitoring network should be installed to allow for monitoring of the groundwater on a quarterly basis to monitor the hydrocarbon concentrations in groundwater. It is anticipated that removal of the source area will result in declining concentrations of TPHd in groundwater.





#### 8.0 REFERENCES

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\_\_\_\_\_\_\_, 2003. Draft Results of Environmental Sampling in the 187 –Acre Real Property Exchange, Camp Parks, Dublin (Alameda and Contra Costa Counties), California, USACHPPM Project No. 38-DH-003H-04. October.





#### **TABLES**





# Table 1. Summary of Analytical Results for Groundwater Monitoring Samples U.S. Army Center for Health Promotion and Preventative Medicine Phase 1 Investigation PRFTA Site 13 Camp Parks Dublin, California

Sample Location	Sample Date	TPH-D* ppb**	Fluorene	Penanthrene	Arsenic	Lead	VOCs
TFMW 1	5/20/2002	93 J	NA	NA	NA	NA	NA
TFMW 2	5/20/2002	74 J	NA	NA	NA	NA	NA
TFMW 3	5/20/2002	2,400	NA	NA	NA	NA	NA
TFMW 4	5/20/2002	260 J	NA	NA	NA	NA	NA
TFMW 5	5/20/2002	520	NA	NA	NA	NA	NA
TFMW 6	5/20/2002	320	NA	NA	NA	NA	NA
TFMW 7	5/20/2002	2,100	NA	NA	NA	NA	NA
TFMW 8	5/20/2002	1,100	NA	NA	NA	NA	NA
TFMW 9	5/20/2002	9,800	4.1	6.8	160	5.6	ND
TFMW 10	5/20/2002	120	NA	NA	NA	NA	NA

<sup>\*</sup> EPA Method 8015B

ND - Well was sampled for VOCs but no VOCs were detected.

Data source: U.S. Army Center for Health Promotion and Preventative Medicine.

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<sup>\*\*</sup>ESL for non-drinking water clean-up level is 640 ppb (TPH-D)

J Concentration is estimated

#### **Table 2. Summary of Analytical Results for Soil Samples** U.S. Army Center for Health Promotion and Preventative Medicine

#### **Phase 1 Investigation PRFTA Site 13**

#### **Camp Parks**

#### **Dublin, California**

Sample Location	Sample Date	Sample Depth	TPH-D* ppm**
BH4B	5/16/2002	8 ft.bgs	5,300
BH9B	5/16/2002	8 ft.bgs	ND (15)
BH14B	5/17/2002	8 ft.bgs	ND (15)
BH20A	5/17/2002	4 ft.bgs	96
BH25B	5/18/2002	8 ft.bgs	ND (15)
BH26B	5/19/2002	8 ft.bgs	4,400
BH31B	5/19/2002	8 ft.bgs	11,000
BH35B	5/19/2002	8 ft.bgs	2,500
BH45B	5/20/2002	8 ft.bgs	4,200

<sup>\*</sup> EPA Method 8015B

ND(15) Not detected above reporting limit

Data source: U.S. Army Center for Health Promotion and Preventative Medicine.

Checked by \$ Approved by

<sup>\*\*</sup>ESL for non-drinking water clean-up level is 500 ppm (TPH-D)

### Table 3. Summary of Analytical Results for Groundwater Monitoring Samples

### U.S. Army Center for Health Promotion and Preventative Medicine

#### Phase 2 Investigation

#### **PRFT Site 13**

#### **Dublin, California**

Sample Location	Sample Date	TPH-D* ppb***	SVOCs ppb**
TFMW 11	10/12/2002	53 J	ND(10)
TFMW 12	10/13/2002	ND(110)	
TFMW 13	10/13/2002	310	
TFMW 14	10/14/2002	350	ND(10)
TFMW 15	10/14/2002	460	

<sup>\*</sup> EPA Method 8015B

ND(10) Not detected above reporting limit

Data source: U.S. Army Center for Health Promotion and Preventative Medicine.

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<sup>\*\*</sup> EPA Method 8270

<sup>\*\*\*</sup> ESL for non-drinking water cleanup level is 640 ppb (TPH-D)

J Concentration is estimated

### Table 4. Summary of Analytical Results for Soil Samples U.S. Army Center for Health Promotion and Preventative Medicine Phase 2 Investigation

#### **PRFT Site 13**

#### **Dublin, California**

Sample Location	Sample Date	Sample Depth	TPH-D* ppm**
BH55C	10/13/2002	9.0 ft.bgs	ND(15)
BH56B	10/13/2002	5.5 ft.bgs	ND(14)
BH58A	10/13/2002	3.0 ft.bgs	ND(12)

ND(15) Not detected above reporting limit

Data source: U.S. Army Center for Health Promotion and Preventative Medicine.

Checked by

Approved by BPF

<sup>\*</sup> EPA Method 8015B

<sup>\*\*</sup> ESL for non-drinking water cleanup level is 500 ppm (TPH-D)

Table 5. Summary of Analytical Results for Soil Samples and Soil Stockpiles
PRFTA Site 13
Dublin, California

Sample Location	Sample Date	Sample Depth	TPH-D*	OIL & GREASE** ppm	VOC's***
1011019-A 1011019-B 1011019-C 1011019-D 1011019-E 1011101-A 1011114-A 1011114-B 1011114-C 1011114-D	10/19/2001 10/19/2001 10/19/2001 10/19/2001 10/19/2001 11/1/2001 11/14/2001 11/14/2001 11/14/2001	Trench-12.0 ft.bgs Trench-8.0 ft.bgs Trench-3.0 ft.bgs Trench-2.5 ft.bgs Trench-2.5 ft.bgs Trench-12.0 ft.bgs NA NA NA NA NA	470 140 35 7.4 2.2 <b>17,000</b> 90 130 74 32	84 22 ND 1.8 4.3	ND
A-1,2,3,4 COMP B-1,2,3,4 COMP C-1,2,3,4 COMP D-1,2,3,4 COMP E-1,2,3,4 COMP F-1,2,3,4 COMP G-1,2,3,4 COMP H-1,2,3,4 COMP	3/12/2004 3/12/2004 3/12/2004 3/12/2004 3/12/2004 3/12/2004 3/12/2004 3/12/2004	NA NA NA NA NA NA	5.7 ND(1.0) 1.6 4.3 1.7 110 3.8 1.5		

<sup>\*</sup> Sample Depth in Fernandez Ave. sewer trench

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Approved by BPF

<sup>\*\*</sup> EPA Method 8015B

<sup>\*\*\*</sup> Volatile Organics by GC/MS

<sup>\*\*\*\*</sup> ESL for non-drinking water cleanup level is 500 ppm (TPH-D)

NA Not applicable; stockpile 4-point composite

ND Not detected above reporting limit

# Table 6 Soil Analytical Results, June 2005 PRFTA 13 Site Investigation Report Parks Reserve Forces Training Area Dublin California

	Beries Nurshau	Sample I.D	Depth (feet)	TPH as Diesal
Date	P13SCSB01	P13SCSB0100	1	<12
6/3/2005	P13SCSB01	P13SCSB0105	5	31
6/3/2005	P13SCSB01	P13SCSB0110	10	<12
6/3/2005	P13SCSB02	P13SCSB0201	1	3.4
6/3/2005	P13SCSB02	P13SCSB0205	5	3.6
6/3/2005	P13SCSB02	P13SCSB0210	10	<12
6/3/2005	P13SCSB03	P13SCSB0301	1	<14
6/3/2005	P13SCSB03	P13SCSB0305	5	<13
6/3/2005	P13SCSB03	P13SCSB0310	10	<12
6/3/2005	P13SCSB04	P13SCSB0400	1	<12
6/3/2005	P13SCSB04	P13SCSB0405	5	<14
6/3/2005	P13SCSB04	P13SCSB0410	10	<13
6/3/2005	P13SCSB04	P13SCSB0400R	Rinsate	0.10
6/3/2005	P13SCSB05	P13SCSB0501	1	6.0
6/3/2005	P13SCSB05	P13SCSB0505	5	<15
6/3/2005	P13SCSB05	P13SCSB0510	10	<16
6/3/2005	P13SCSB06	P13SCSB0601	1	93
6/3/2005	P13SCSB06	P13SCSB0605	5	5.0
6/3/2005	P13SCSB06	P13SCSB0610	10	5.9
6/3/2005	P13SCSB07	P13SCSB0700	1	3.7
6/3/2005	P13SCSB07	P13SCSB0705	5	<13
6/3/2005	P13SCSB07	P13SCSB0710	10	<12
6/3/2005	P13SCSB07	P13SCSB0700R	Rinsate	0.073
6/3/2005	P13SCSB08	P13SCSB0800	1	<13
6/3/2005	P13SCSB08	P13SCSB0802	2	120
6/3/2005	P13SCSB08	P13SCSB0805	5	100
6/3/2005	P13SCSB08	P13SCSB0810	10	2,500
6/3/2005	P13SCSB09	P13SCSB0900	11	320
6/3/2005	P13SCSB09	P13SCSB0902	2	3.3
6/3/2005	P13SCSB09	P13SCSB0905	5	2.5
6/3/2005	P13SCSB09	P13SCSB0910	10	<12
6/3/2005	P13SCSB10	P13SCSB1000	11	340
6/3/2005	P13SCSB10	P13SCSB1002	2	<11
6/3/2005	P13SCSB10	P13SCSB1005	5	<14
6/3/2005	P13SCSB10	P13SCSB1010	10	<13
6/3/2005	P13SCSB11	P13SCSB1100	1	61
6/3/2005	P13SCSB11	P13SCSB1102	2	52
6/3/2005	P13SCSB11	P13SCSB1105	5	150
6/3/2005	P13SCSB11	P13SCSB1110	10	<13
6/3/2005	P13SCSB12	P13SCSB1200	1 -	<13
6/3/2005	P13SCSB12	P13SCSB1205	5	<14
6/3/2005	P13SCSB12	P13SCSB1210	10	<14
6/3/2005	P13SCSB13	P13SCSB1300	1	7.2
6/3/2005	P13SCSB13	P13SCSB1305	5	<13
6/3/2005	P13SCSB13	P13SCSB1310	10	<13

## Table 6 Soil Analytical Results, June 2005 PRFTA 13 Site Investigation Report Parks Reserve Forces Training Area Dublin California

Date **	Boring Number	Sample I.D.	Depth (feet)	TPH as Diesal (mg/kg)
6/7/2005	P13SCGW1111	P13SCGW1111	11	4,200
6/7/2005	P13SCGW1408	P13SCGW1408	8	5.3

mg/kg = milligrams per kilogram

Reported at concentrations greater than the RWQCB Environmental

**Bold** Screening Level for TPH-d.

< Below the laboratory reporting limit.

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# Table 7 HydroPunch Analytical Results, June 2005 PRFTA 13 Site Investigation Report Parks Reserve Forces Training Area Dublin, California

Date	Boring Number	Sample I.D.	Screen Interval	TPH as Diesal (mg/l)
6/6/2005	P13SCGW01	P13SCGW01	12 to 16	0.060
6/6/2005	P13SCGW02	P13SCGW02	11 to15	0.16
6/6/2005	P13SCGW03	P13SCGW03	11 to 15	0.10
6/6/2005	P13SCGW04	P13SCGW04	10 to 13	0.090
6/6/2005	P13SCGW05	P13SCGW05	11 to 16	0.26
6/6/2005	P13SCGW06	P13SCGW06	9 to 14	0.54
6/7/2005	P13SCGW07	P13SCGW07	12 to15	0.12
6/7/2005	P13SCGW08	P13SCGW08	11 to16	0.56
6/7/2005	P13SCGW09	P13SCGW09	11 to16	0.63
6/7/2005	P13SCGW09D	P13SCGW09D	Dup.	0.14
6/7/2005	P13SCGW10	P13SCGW10	12 to16	27
6/7/2005	P13SCGW11	P13SCGW11	12 to 16	24
6/7/2005	P13SCGW11	P13SCGW11	Rinsate	0.095
6/7/2005	P13SCGW12	P13SCGW12	12 to16	0.55
6/7/2005	P13SCGW13	P13SCGW13	11 to16	650
6/7/2005	P13SCGW13D	P13SCGW13D	Dup.	15
6/7/2005	P13SCGW14	P13SCGW14	11 to16	13
6/7/2005	P13SCGW15	P13SCGW15	12 to16	0.11
6/7/2005	P13SCGW16	P13SCGW16	12 to16	0.14

mg/l= milligrams per liter

**Bold** Reported at concentrations greater than the RWQCB ESL

< Below the laboratory reporting limit.

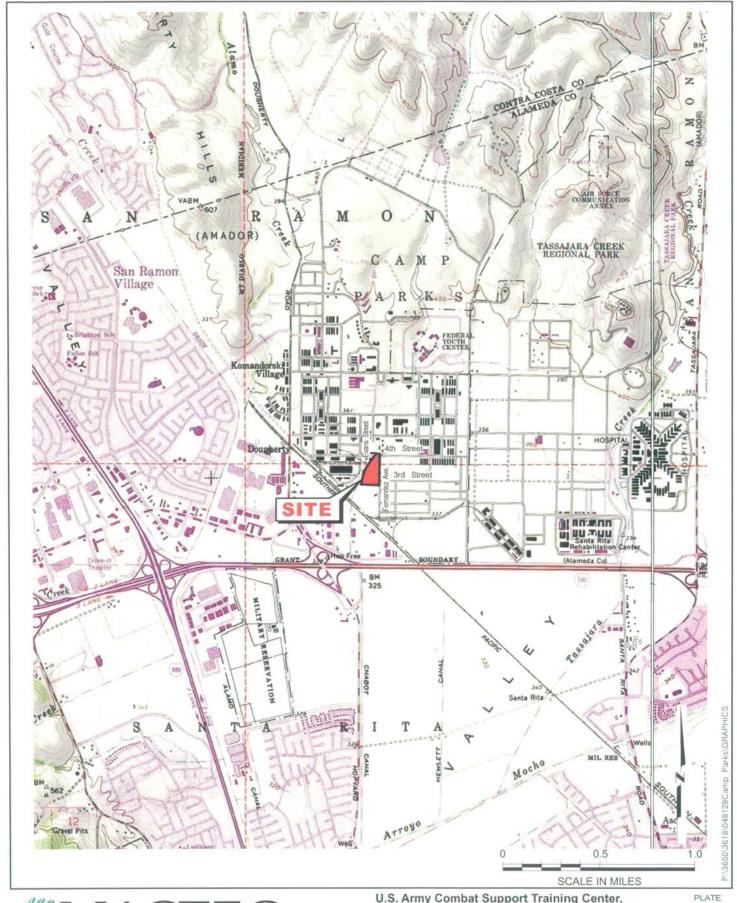
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#### **PLATES**









U.S. Army Combat Support Training Center, Camp Parks

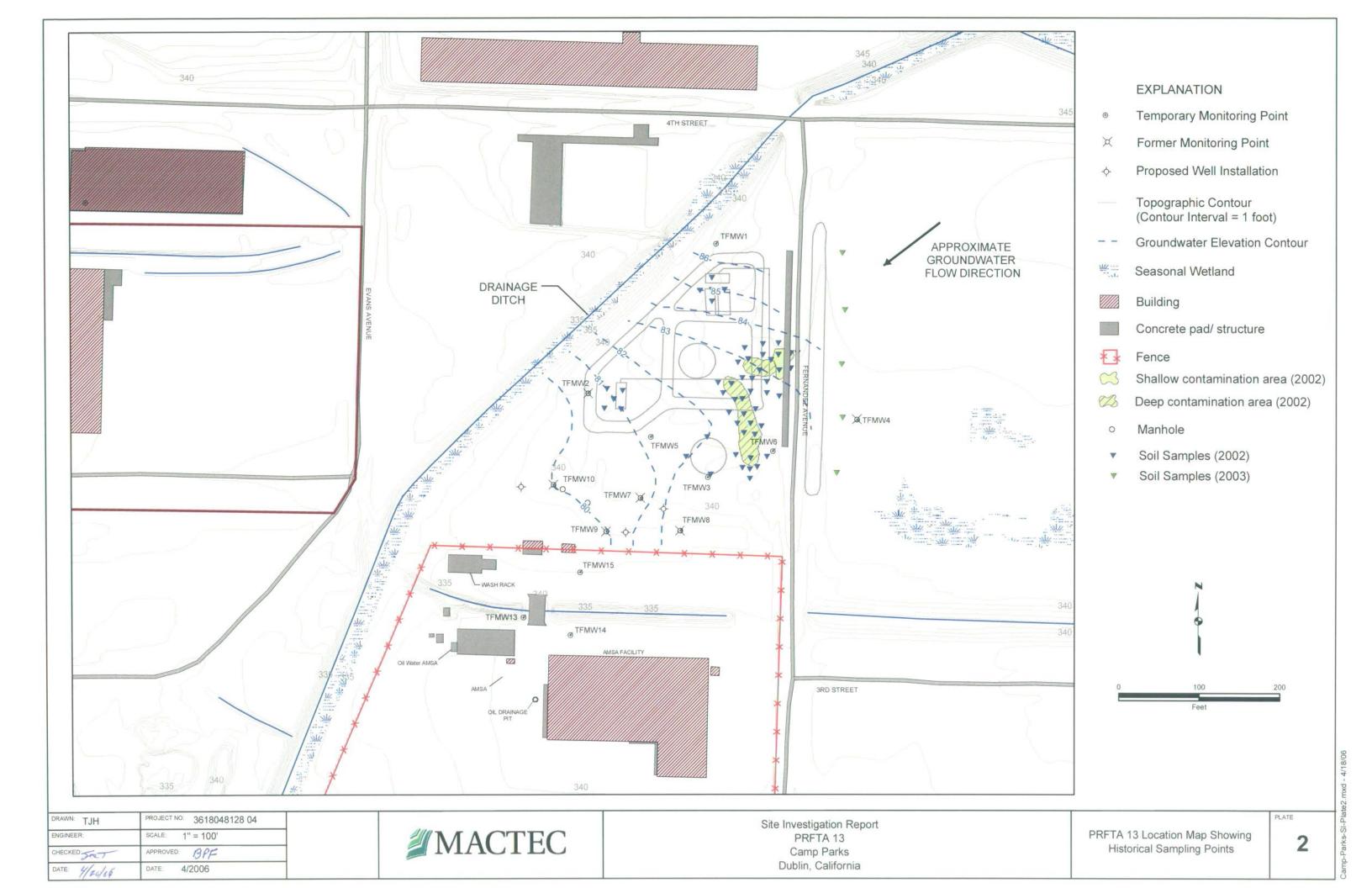
Site Investigation Report PRFTA 13

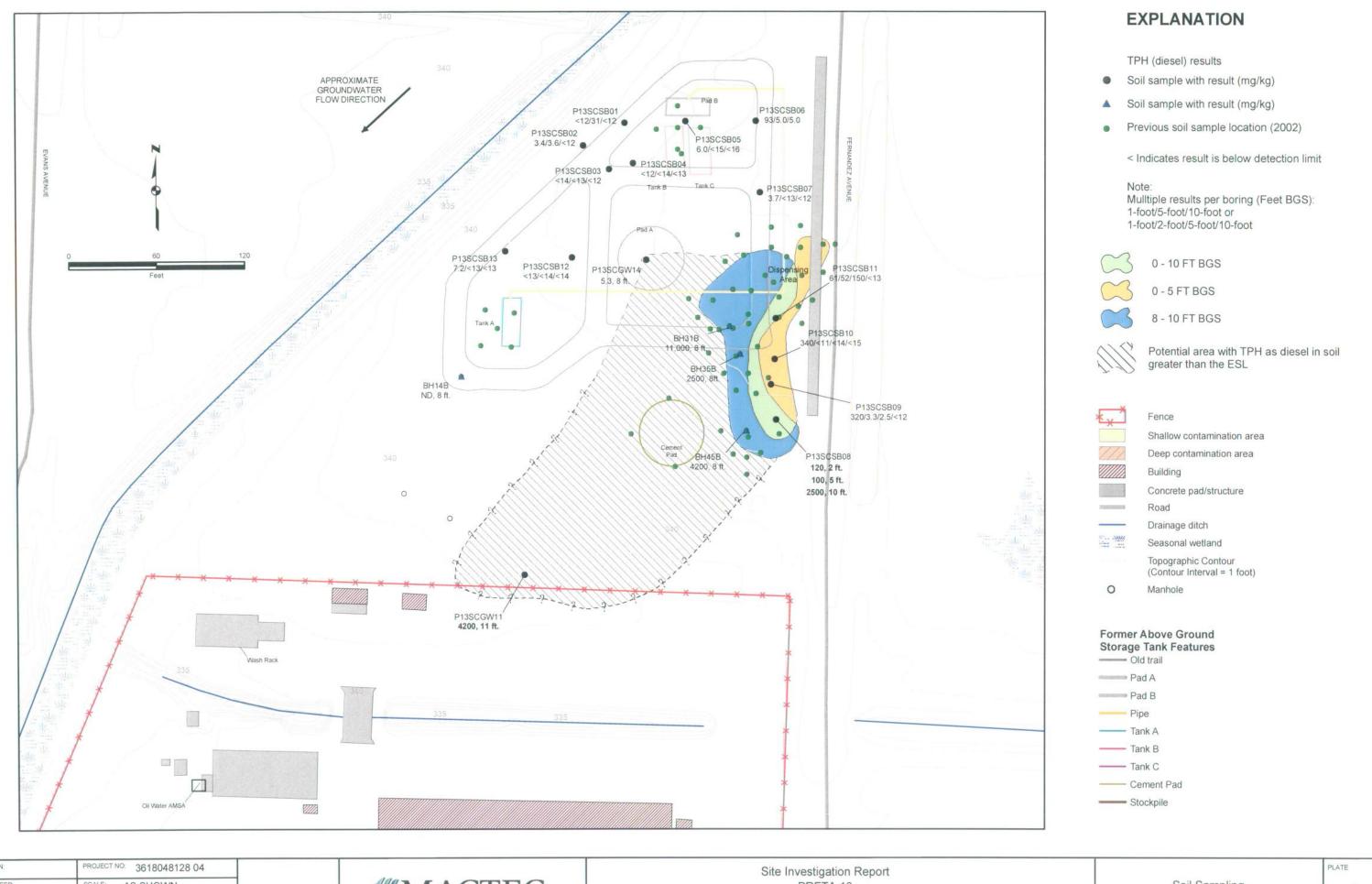
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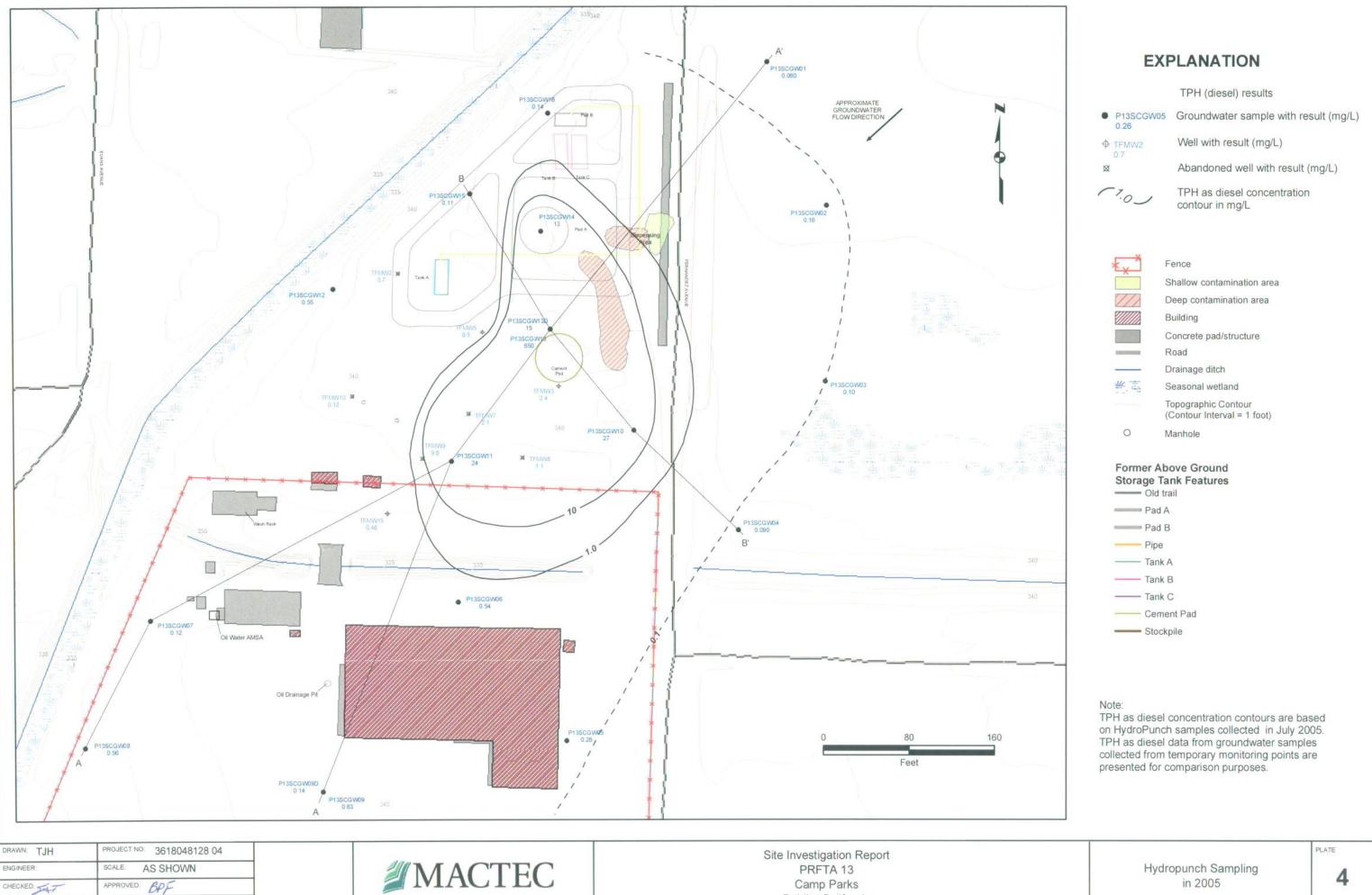
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Site Investigation Report
PRFTA 13
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Soil Sampling Results 3



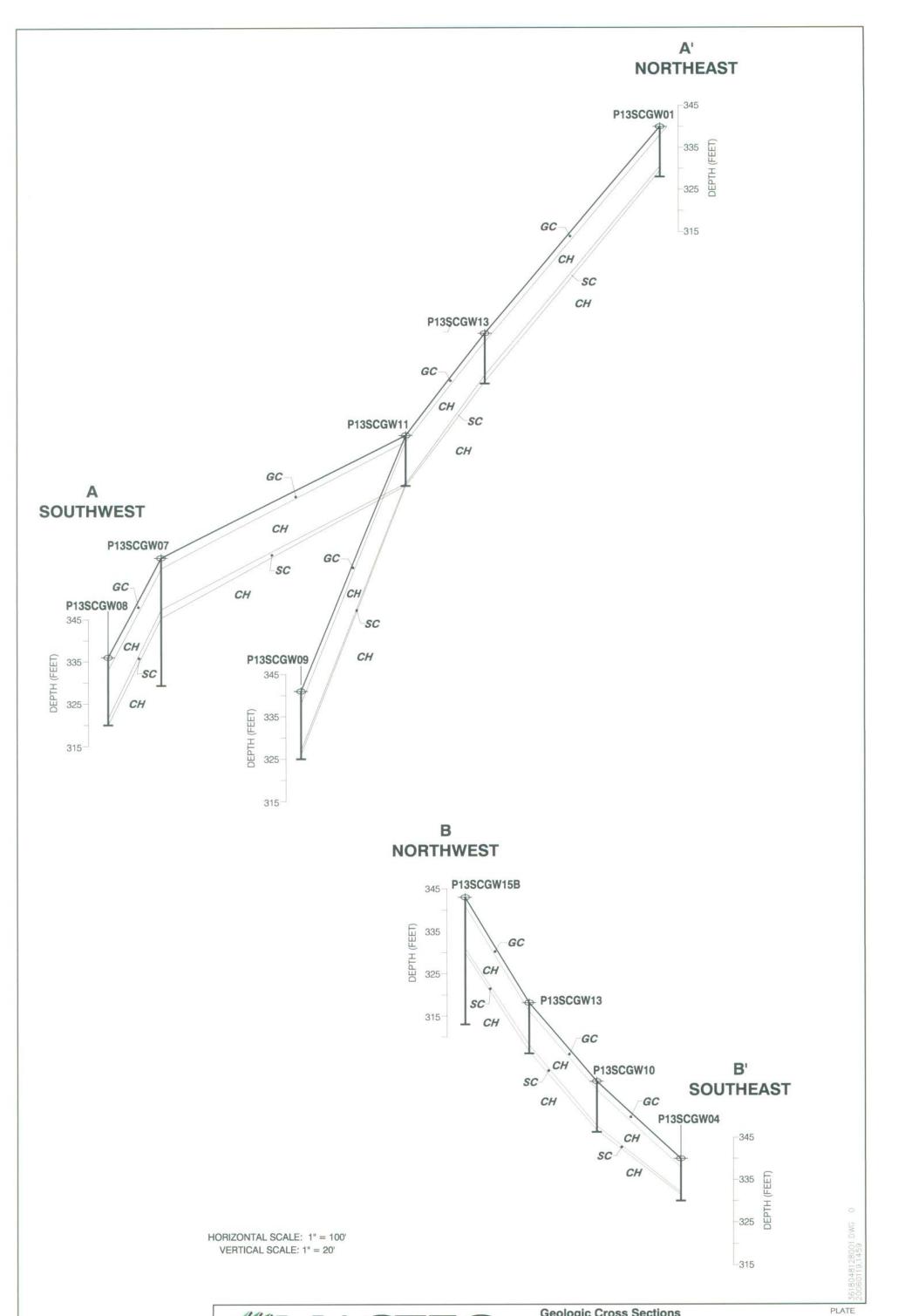
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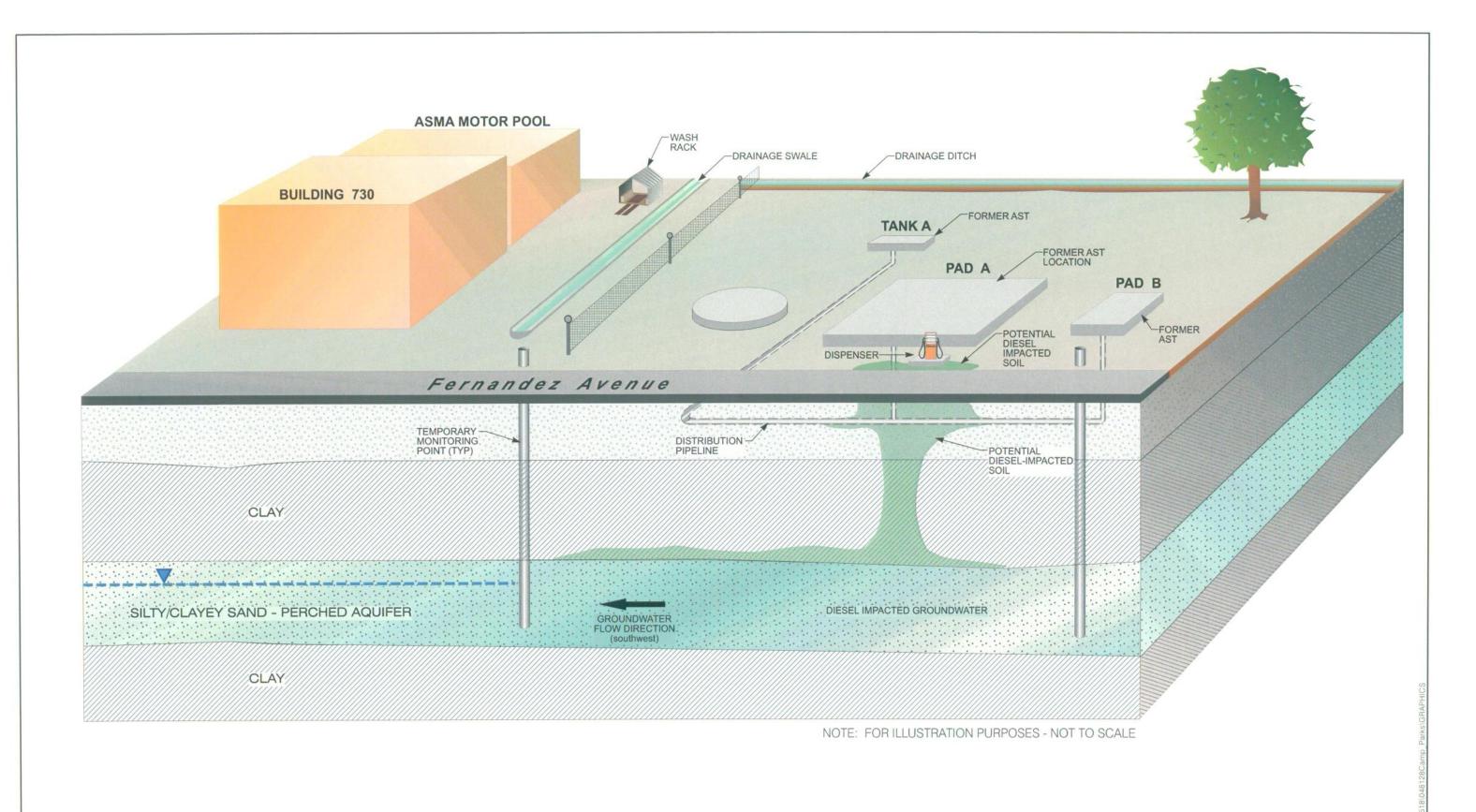
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#### **EXPLANATION**





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Conceptual Site Model
Site Investigation Report
Former Tank Farm (PRFTA 13)
U.S. Army Combat Support Training Center
Dublin, California

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# APPENDIX A BORING LOG CLEARANCE RECORDS





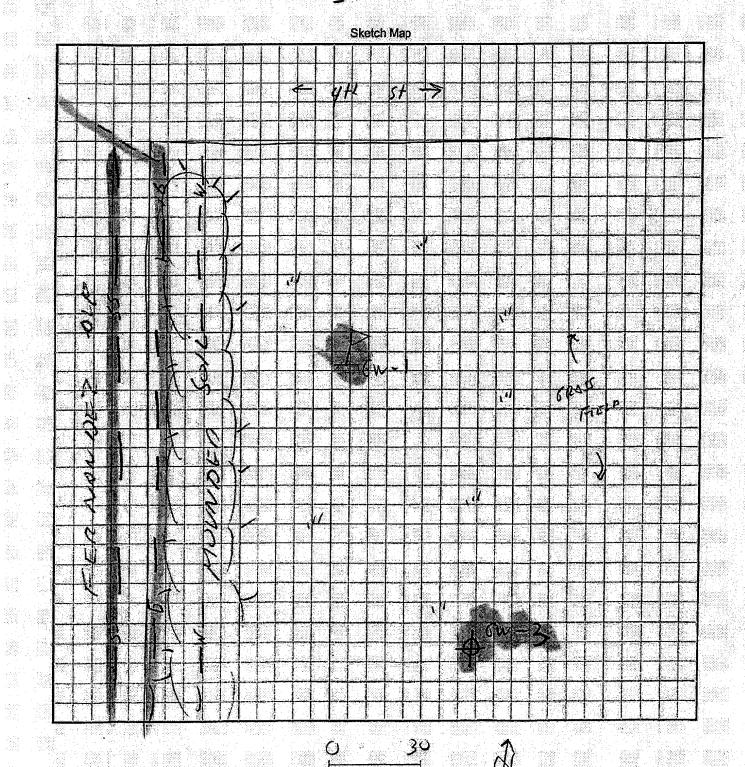


## RESULTS AND INSTRUMENTATION

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## RESULTS AND INSTRUMENTATION

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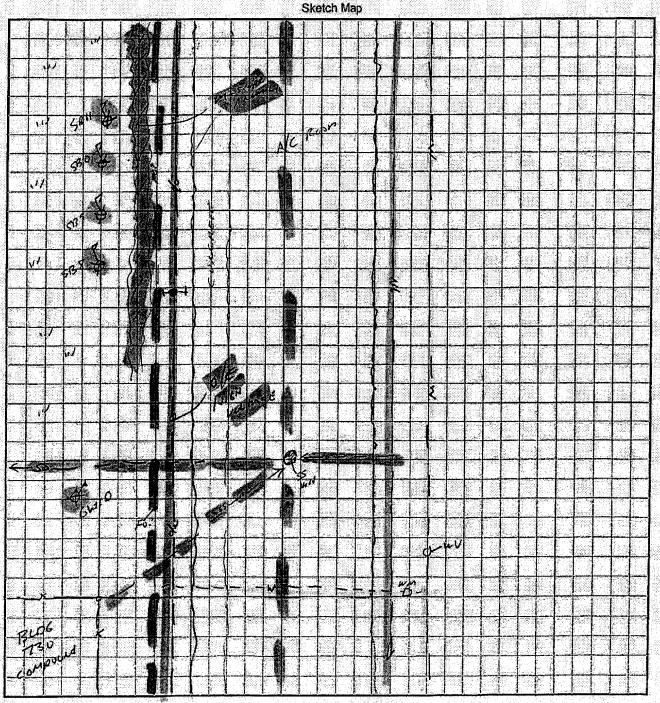
Project No. 368 04 8125 02

Location CAMP PARKS, Public CA

Date <u>5/16/or</u> Time <u>1630</u>

Borehole/Well I.D. SR-8 → SR -II

Operator Paus





#### RESULTS AND INSTRUMENTATION

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on-4 Sketch Map 

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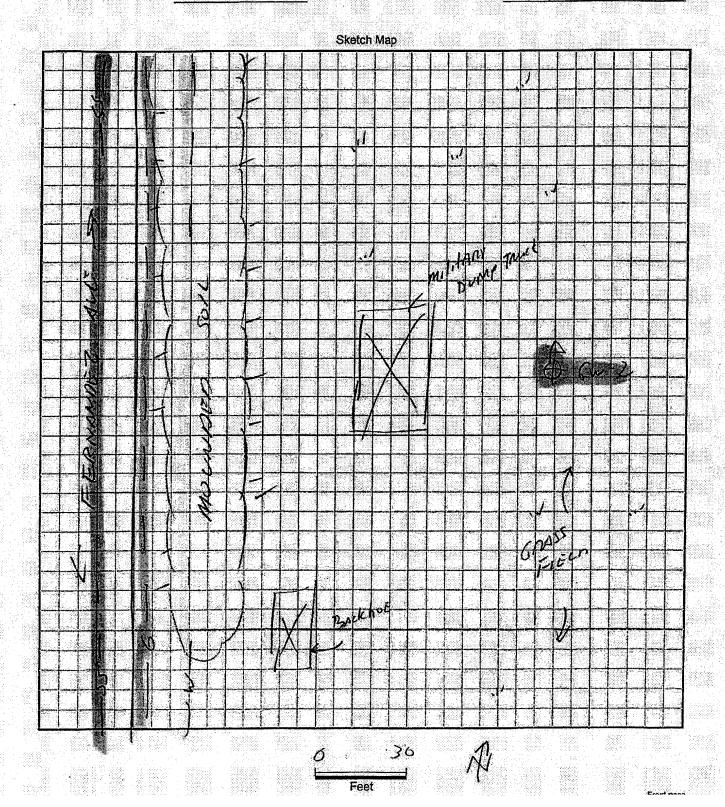
## RESULTS AND INSTRUMENTATION

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	enti (1. Mandaya (1. 1916) Tanan araba					
PIPE & CABLE LOCATAOR (M-Scope)						30
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Underground utilities detected	near boring	/trench_l	ocation?	Y	N.	
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#### **BOREHOLE CLEARANCE RECORD**

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#### RESULTS AND INSTRUMENTATION

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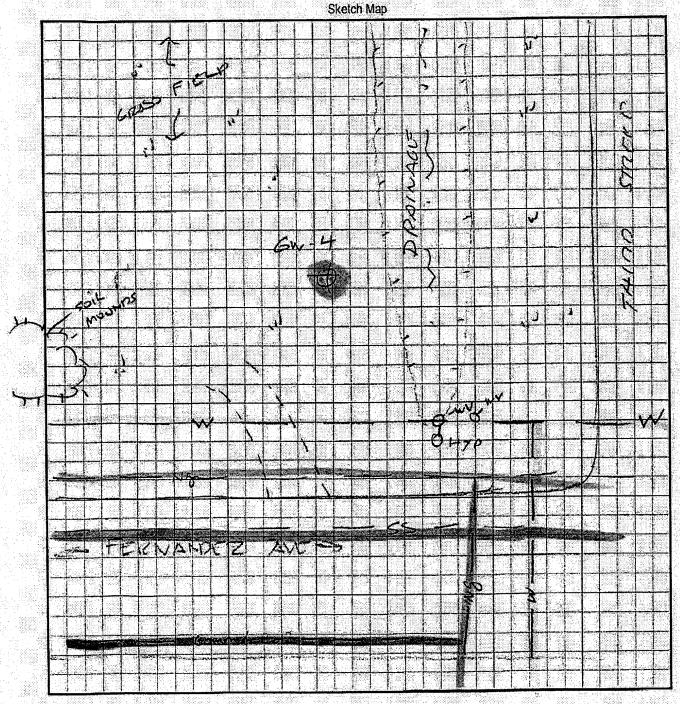
Project No. 3618 09 \$125

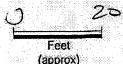
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Location Comp parks , Dubin CA

Borehole/Well I.D. Gu-Y

Operator Rus







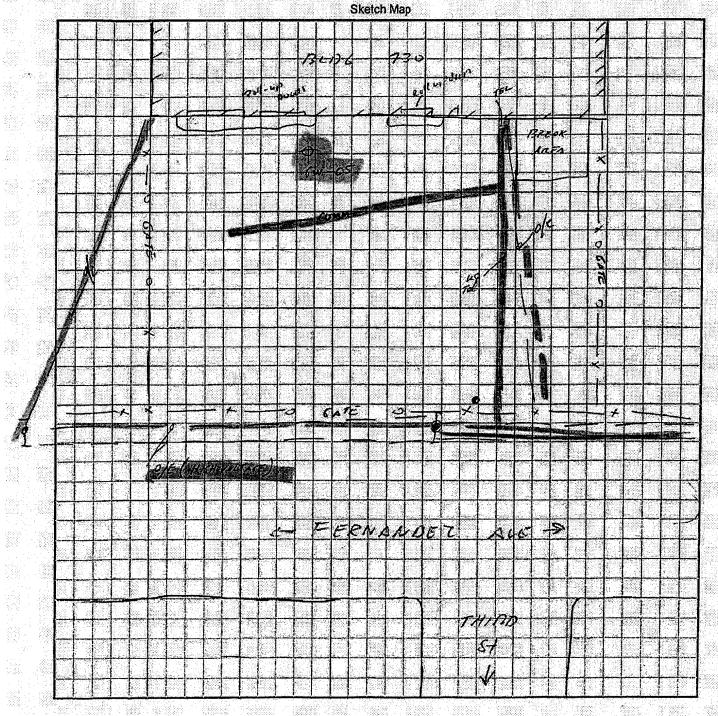
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## RESULTS AND INSTRUMENTATION

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PIPE & C/	ABLE(	/L	(UT AOR	Α RD-400	sen o_L	RD-600	<i>//w</i>	e e inii	<i>'</i>	<b>76</b>	7	LNE	
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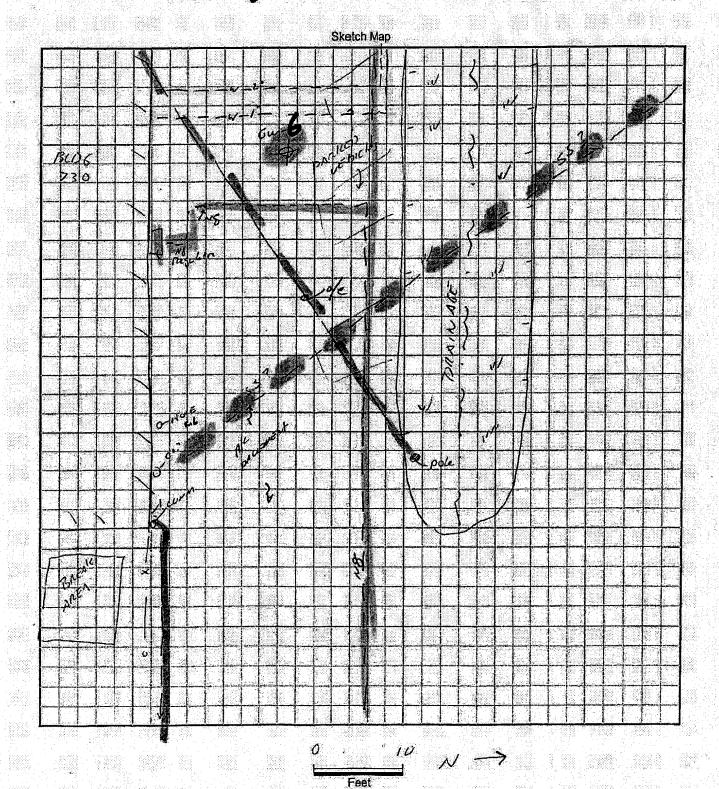


## RESULTS AND INSTRUMENTATION

GROUND PEN	NETRATING RADAR (GPR)	SIR-3	SIR-7 SIF	\-8 SIR-10 .	
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ELECTROMA	GNETICS (EM)				
Mode:	In-Phase	Cor	nductivity		
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Results 🕰	ried metal detected?				
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Mode: P Results <i>Uni</i>	ELOCATAOR RD-400  LRL Applied Signal derground utilities de  LLCARY	l, Direct Connect _ tected_near_bor	Applied Sig	cation? (Y)	
	LE LOCATAOR (M-Scope) uried metal detected?	O N	Proceedings of the control of the co		
Undergrou	und utilities detected	near boring/tr	ench location?		
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MAGNETOM		dtOther_			
Results $\underline{B}$	uried metal detected?	Y (N)			



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## RESULTS AND INSTRUMENTATION

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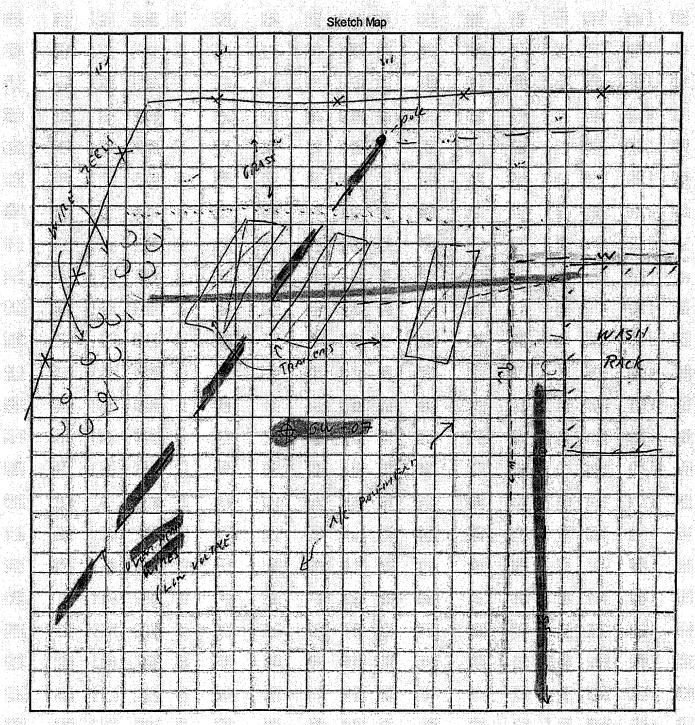
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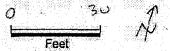
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ELECTROM	AGNETICS (EM)				
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Results $\underline{B}$	uried metal detected? ]	/ N Other	anomalous	readings?	Y N
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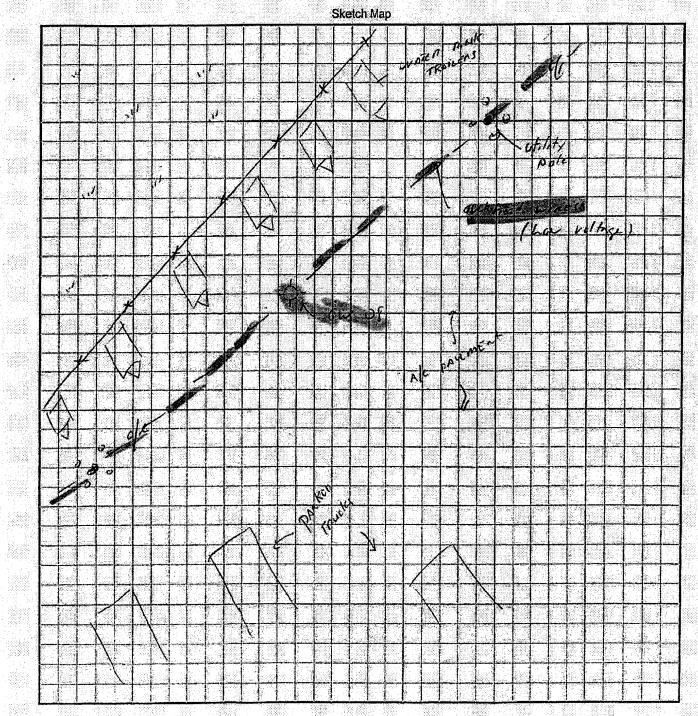
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## RESULTS AND INSTRUMENTATION

GRÖUND PENETRATING RADAR (GPR) SIF	R-3 🚩 SIR-7 SIR-8	SIR-10
Antenna ¿com/tz	Antenna	
Range <u>fors</u>	Range	
Sensitivity	Sensitivity	
Filter <u>A</u>	Filter	
Taped? Y N	Taped?	YN
Graphical Record? Y_E'N	Graphical Record	all ville in the backet in the e
Results Buried objects imaged? Y (N)	Other anomalous reflec	tions? Y (N)
ELECTROMAGNETICS (EM)		
Mode: · In-Phase	Conductivity	
Background Conductivi	$\mathcal{I}$	m)
Results Buried metal detected? Y/N	Other anomalous readi	ngs? Y N
NOT USED PRINTS	unty to class	-cente
Force & TRAVERS		
PIPE & CABLE LOCATAOR RD-400 V RD-60		
	The contractor of the contract	140
Mode: P → R ← Applied Signal, Direct C	connect Applied Signal,	Induced
Results Underground utilities detected r	near boring/trench locat	ion? Y [N
PIPE & CABLE LOCATAOR (M-Scope)		
Results Buried metal detected? Y	0	
Underground utilities detected near bo	ring/trench location?	Y (II)
MAGNETOMETER Schonstedt	Other	
Results Buried metal detected? Y A		



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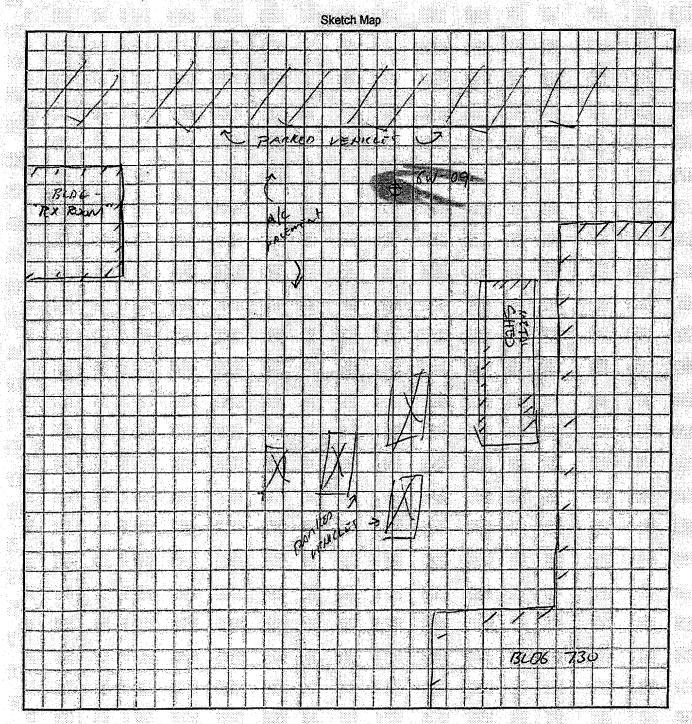


## RESULTS AND INSTRUMENTATION

GROUND PENETRATING RADAR (GPR) SIF	R-3
Antenna <u>600 m Hr.</u>	Antenna * 1
Range / Ca C	Range
Sensitivity <u>Pr</u>	Sensitivity
Filter <u>A</u>	Filter
Taped? Y N_L	Taped? Y N
Graphical Record? Y_L N_	Graphical Record? Y N
Results Buried objects imaged? Y (N)	Other anomalous reflections? Y(N)
ELECTROMAGNETICS (EM)	
	Conductivity
	ty mS/m (mmhos/m)
	Other anomalous readings? Y N
	2 paxinity to
BUDG A MELICLY	
PIPE & CABLE LOCATAOR RD-400 C RD-60	0 Other
Mode: P R Applied Signal, Direct C	Connect Applied Signal, Induced
Results <i>Underground</i> utilities detected a	near boring/trench location? Y (N
Nesula Transfer of the Control of th	
	200 C. Charles (200 March 1997) - 100 C. Charles (200 March 1997) - 100 C. Charles (200 March 1997)
PIPE & CABLE LOCATAOR (M-Scope)	
Results Buried metal detected? Y Q	
Underground utilities detected near bo	pring/trench location? Y (N)
MAGNETOMETER Schonstedt	Other
	V



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#### RESULTS AND INSTRUMENTATION

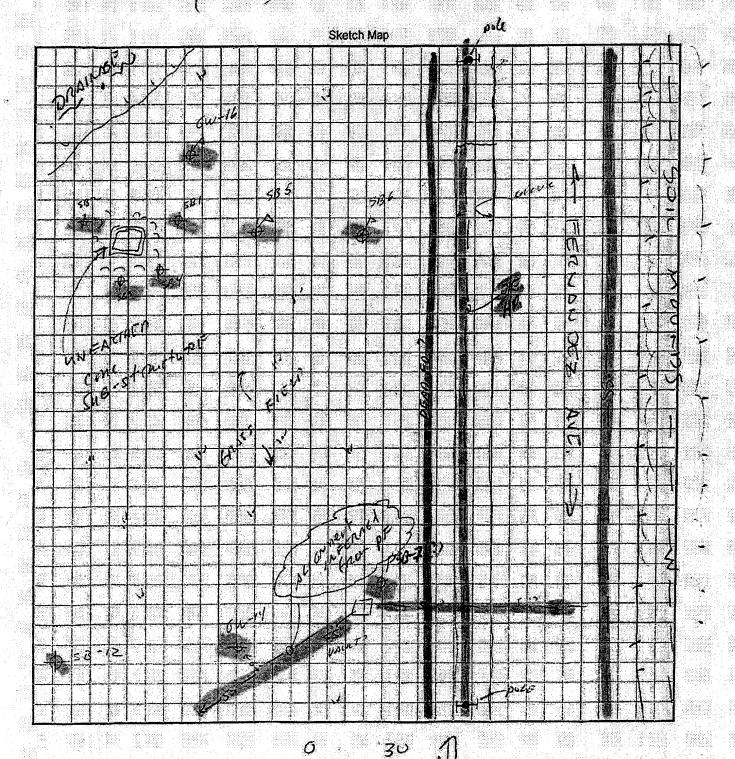
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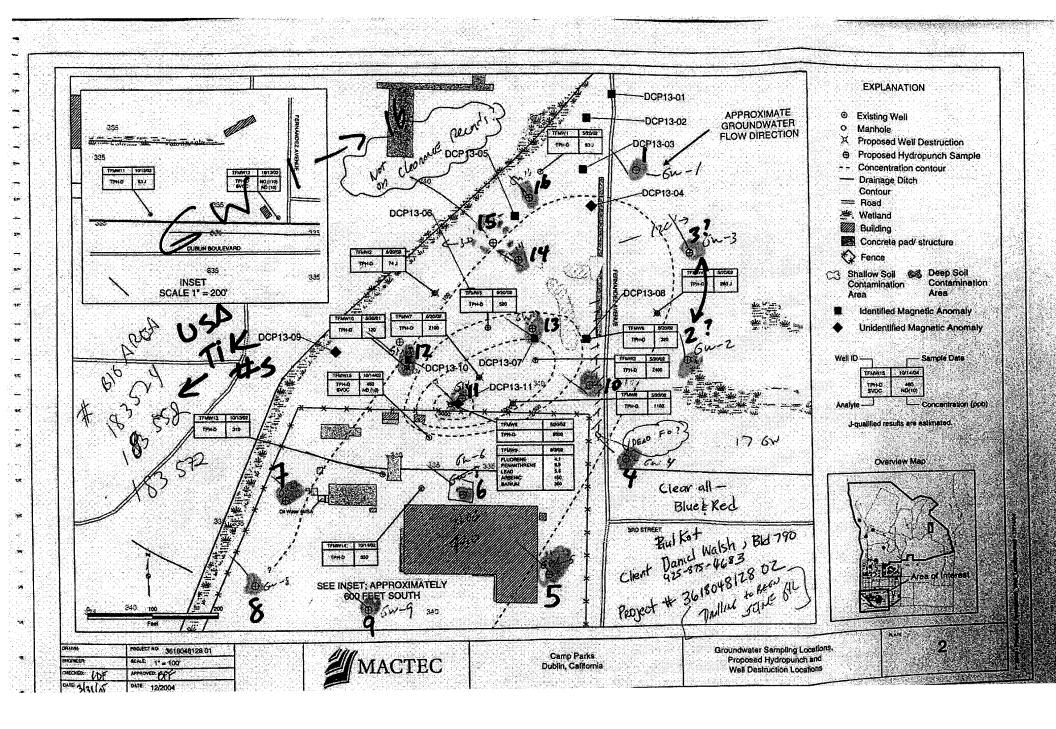
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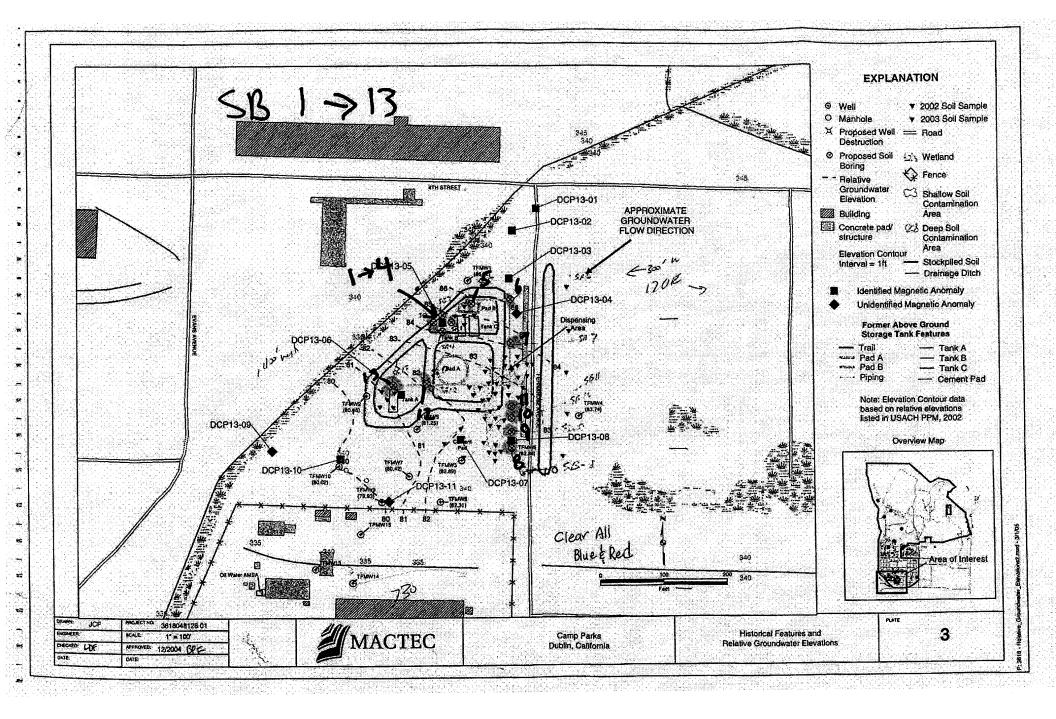


## BOREHOLE CLEARANCE RECORD

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## APPENDIX B SOIL BORING LOGS





Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Surface Elevation 342 ft. Date 6/6/05 Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** DARK GRAYISH BROWN CLAYEY GRAVEL WITH SAND (GC) (2YR 4/2) 55% gravel, 30% sand, 15% clay (Fill)
-VERY DARK GRAY SANDY FAT CLAY
WITH GRAVEL (CH) (10YR 3/1) Very stiff, dry, 50% clay, 30% fine to coarse sand, 20% angular gravel (Fill)
LIGHT OLIVE-BROWN FAT CLAY (CH) (2.5Y 5/4) Stiff, dry, 95% clay, 5% fine sand Change to VERY DARK GRAY FAT CLAY (CH) (2.5Y 3/1) Medium stiff, moist, 90% clay, 10% silt, trace fine sand @ 6.5 ft. Change to LIGHT OLIVE-BROWN (2.5Y 5/4), trace caliche LIGHT OLIVE BROWN POORLY GRADED SAND (SP) (2.5Y 5/3) Loose, wet, 90% sand, 10% fines P13SCGW01F LIGHT OLIVE BROWN SANDY SILT (ML) (2.5Y 5/3) Stiff, wet, 60% silt, 40% fine

> Hydropunch Sample: Screen Interval 12 to 16 Feet. Groundwater sample number P13SCGW01F

BORING\_WELL\_MACTEC 3618048128\_CAMPPARKS.GPJ GEOL.GDT 1/6/06

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Log of Boring P13SCGW01

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Log of Boring P13SCGW02

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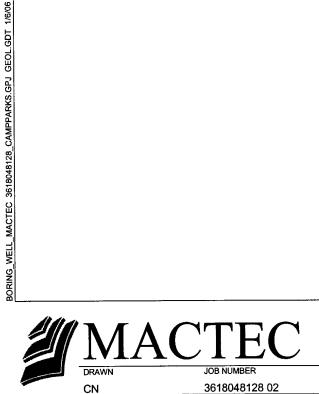
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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Surface Elevation 341 ft. Date 6/6/05 Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE BROWN SILTY GRAVEL WITH SAND** (GM) (10YR 5/3) Loose, dry, 50% gravel, 30% fine to coarse sand, 20% silt (Fill) DARK GRAY SANDY FAT CLAY WITH GRAVEL (CH) (10YR 4/1) Stiff, dry, 50% clay, 30% fine to coarse sand, 20% gravel DARK BROWN FAT CLAY (CH) ( 10YR 4/1) Stiff, dry, 85% clay, 10% fine sand, 5% DARK GRAYISH BROWN CLAYEY SAND (SC) (5Y 4/2) Loose, moist, 80% fine to medium sand, 20% lean clay DARK GRAYISH BROWN LEAN CLAY P13SCGW03F WITH SAND (CL) (5Y 4/2) Soft, moist, 75% clay, 25% fine to medium sand

Hydropunch Sample: Hydropunch Screen Interval 12 to 16 Feet. Groundwater sample number P13SCGW03F



Log of Boring P13SCGW03

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft. Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE BROWN CLAYEY GRAVEL WITH SAND** (GC) (10YR 5/3) Loose, dry, 50% gravel, 30% sand, 20% lean clay. (Fill) VERY DARK GRAYISH BROWN FAT CLAY (CH) (10YR 3/2) Firm, moist, 80% clay, 20% silt

P13SCGW04F

5/2) Soft, moist, 85%, clay, 15% silt LIGHT OLIVE BROWN CLAYEY SAND (SC) (2.5Y 5/3) Loose, moist, 60% fine sand, 40% clay

OLIVE BROWN LEAN CLAY (CL) (2.5Y

Date <u>6/6/0</u>5

Sampled through a 2 inch P.V.C.screen: P.V.C. screen interval from 8 to 13 feet. Ground water sample number P13SCGW04F

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Log of Boring P13SCGW04

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** DARK GRAYISH BROWN CLAYEY GRAVEL WITH SAND (GC) (2.5Y 4/1) Loose, dry, 60% gravel, 20% fine to coarse sand, 20% lean clay (Fill) @ 3 feet DARK GRAY CLAYEY GRAVEL WITH SAND (GC) (5Y 3/1) Medium dense, moist, 50% gravels, 30% fine to coarse sand, 20% lean clay. VERY DARK GRAY FAT CLAY (CH)) (5Y 3/1) Moist, stiff, 80% clay, 20% silt, trace fine sand @ 8 ft.: Color change to GRAY (5Y 5/1) @ 10 ft.: Color change to OLIVE GRAY (5Y4/2)

P13SCGW05F

@ 15.5 ft. Change to DARK GREENISH GRAY (5GY 4/1), soft, wet

Date 6/6/05

Sampled through a 2 inch P.V.C. screen. Screen interval from 11 to 16 feet. Ground water sample number P13SCGW05F

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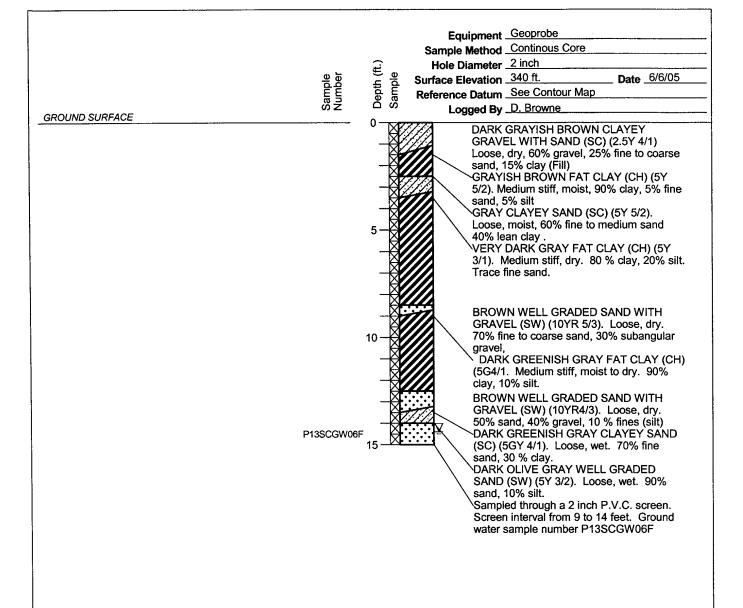
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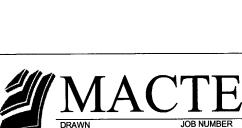
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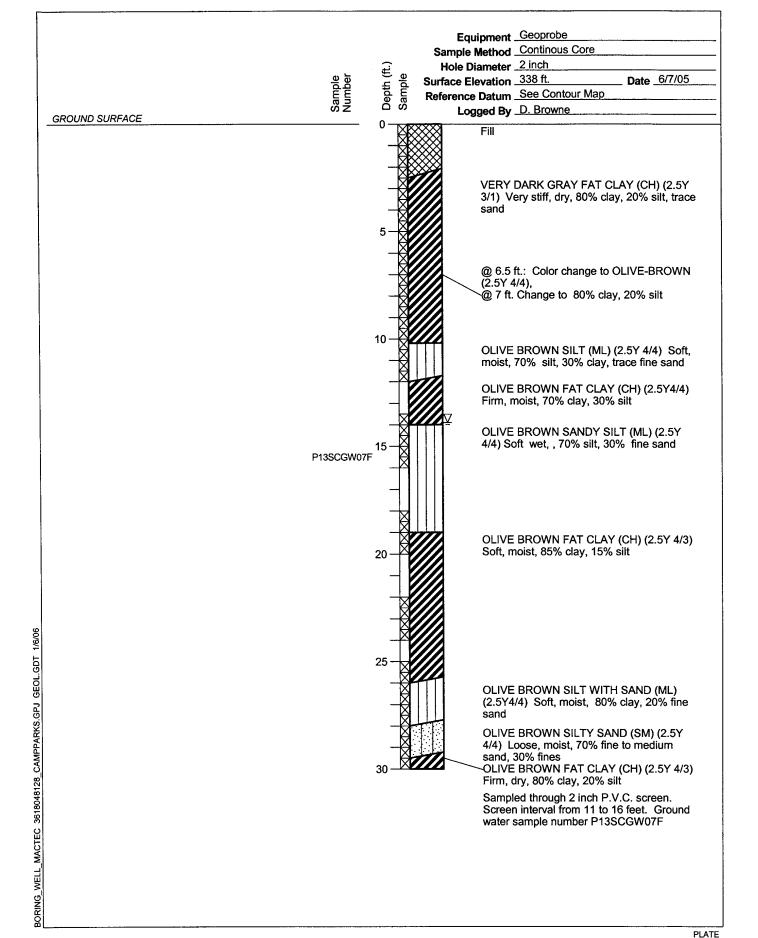
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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Date \_6/6/05 Surface Elevation 336 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** DARK GRAYISH BROWN CLAYEY GRAVEL WITH SAND (GC) (2.5y 4/2) Loose, dry, 55% gravel, 30% fine to coarce sand, 15% clay (Fill) VERY DARK GRAY FAT CLAY (CH) (2.5Y 3/1) Very stiff, dry, 90% clay, 10% silt @ 5 ft. simular to above Stiff, dry @ 11 ft. Color change to Brown (10 YR 5/3) @13 ft LIGHT OLIVE BROWN SANDY FAT CLAY (CH) (2.5Y 5/3) Medium stiff, moist, 70% clay, 30% fine sand Dup P13SCGW08D5 LIGHT OLIVE BROWN POORLY GRADED SAND WITH SILT (SP) (2.5Y 5/3) Medium P13SCGW08F dense, moist, 70% sand, 30% silt Sampled through a 2 inch P.V.C. screen. Screen interval from 11 to 16 feet.

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Log of Boring P13SCGW08

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Groundwater sample and duplicate sample number P13SCGW08F and P13SCGW08D

**Equipment** Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Date \_6/7/05 Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** GRAYISH BROWN CLAYEY GRAVEL WITH SAND (GC) (2.5Y 5/2 Loose, dry, 50% angular gravels, 30% clay, 20% fine to course sand (Fill) VERY DARK GRAY FAT CLAY (CH) (2.5F 5/2) Very stiff, dry, 90% clay, 10% silt trace fine sand Change to LIGHT OLIVE BROWN (2.5Y 5/3) Stiff, moist **GRAYISH BROWN CLAYEY SANDS (SC)** P13SCGW09F 1 (2.5Y 5/2) Medium dense, wet, 60% sand, 40% clay GRAYISH BROWN FAT CLAY WITH SAND (CH) (2.5Y5/2) Soft, wet, 80% clay, 20%

> Sampled through a 2 inch P.V.C. screen. Sceen interval from 11 to 16 feet. Groundwater sample number P13SCGW09F

fine sand

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Log of Boring P13SCGW09

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** GRAYISH BROWN SILTY GRAVEL WITH SAND (GM) (10YR 5/2) Loose, dry, 50% angular gravels, 30% sand, 20% silt (Fill) DARK OLIVE GRAY FAT CLAY (CH) (5Y3/2) hard, dry, 80% clay 20% silt, trace @ 4 ft. color change to VERY DARK GRAY (2.5Y 3/2) trace gravel @ 10.5 Color change to OLIVE GRAY (2.5Y4/2)

P13SCGW10F

OLIVE GRAY SILTY SAND (SM) (5Y4/2) Loose, moist to wet, 85% fine sand, 15% silt Slight hydrocarbon odor.
DARK GREENISIH GRAY FAT CLAY (CH) (5GY4/1) soft, moist, 71% clay, 30% silt, slight hydrocarbon odor, visable sheen. Hydropunch Sample: Screen Interval from 12 to 16 feet. Ground water sample number P13SCGW10F

Date \_6/7/05

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Log of Boring P13SCGW10

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Date 6/7/05 Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** GRAYISH BROWN SILTY GRAVEL WITH SAND (GM) (2.5Y 5/1) Loose,dry 50% angular gravel, 30% fine to coarse sand, 20% silt (Fill) GRAYISH BROWN FAT CLAY (CH) (10YR 5/2) Very stiff, dry, 80% clay, 15% fine sand, 5% silt Mottled with dark gray (10YR3/1) trace roots @ 5 ft. Color change to VERY DARK GRAY (2.5Y3/1) @ 9 ft. Trace roots @ 9 ft. Increase in silt to 25% P13SCGW11F DARK GREENISH GRAY SILT WITH

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SAND (ML) (5G 4/1) Soft, moist, 70% silt, 30% sand. Slight hydrocarbon odor. Hydropunch Sample: Screen Interval from 12 to 16 feet. Groundwater sample number P13SCGW11F

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Surface Elevation 338 ft. Reference Datum See Contour Map Logged By D. Browne GROUND SURFACE GRAYISH BROWN SILTY GRAVEL WITH SAND (GM) (2.5Y5/1) Loose, dry, 50% angular gravel, 30% fine to coarse sand, 20% silt (Fill) GRAYISH BROWN FAT CLAY (CH) (10YR 5/2) Very stiff, dry, 80% clay, 20% silt Mottled with very dark gray (10YR 3/1) Trace fine sand, Trace gravel @ 5 ft. Change to BROWN FAT CLAY (CH) (10YR 4/3) Stiff, dry, increase in silt to 35%, trace fine sand

P13SCGW12F

@ 9 ft. Change to BROWN SANDY FAT CLAY (CH) (10YR 4/3) Soft, wet, 60% clay, 40% fine to medium sand

Date 6/7/05

VERY DARK GRAYISH BROWN POORLY GRADED SAND (SP) (10YR 3/2) Loose, wet, 90% fine to medium sand, 10% fines

Hydropunch Sample: Screen interval from 12 to 16 feet. Ground water sample number P13SCGW12F

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Log of Boring P13SCGW12

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Date \_6/7/05 Surface Elevation 340 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** @ 6 ft. increase in silt to 30%

BORING\_WELL\_MACTEC 3618048128\_CAMPPARKS.GPJ GEOL.GDT 1/6/06

P13SCGW13F

LIGHT GRAYISH BROWN SILTY GRAVEL WITH SAND (GM) (2.5Y 6/2) Loose, dry , 50% gravel, 30% fine to coarse sand, 20%

DARK GRAY FAT CLAY (CH) (2.5Y 4/1) Very stiff, dry, 90% clay, 10% silt

@ 4 ft. Color change to DARK GRAYISH BROWN (10YR 4/2)

OLIVE GRAY SANDY SILT (ML) (5Y 5/2) Stiff, moist, 60% silt, 40% fine sand

DARK GREENISH GRAY FAT CLAY (CH) (5G 4/1) Soft, moist, 80% clay, 20% silt, slight hydrocarbon odor, @ 12 ft. increase in sand

Hydropunch Sample: Screen interval from 13 to 16 feet. Ground water sample number 13SCGW13F

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Log of Boring P13SCGW13

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**GROUND SURFACE** 

Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Date 6/7/05 Surface Elevation 342 ft. Reference Datum See Contour Map Logged By D. Browne

Depth (ft.)

GRAYISH BROWN SANDY LEAN CLAY WITH GRAVEL (CL) (2.5Y 5/21) Soft, dry, 60% clay, 30% fine to coarse sand, 20% angular gravel (Fill) VĔŘY DĂRK GŘAÝ FAT CLAY (CH) (2.5Y 3/1) Very stiff, dry, 80% clay, 20% silt, trace fine sand

@ 5 ft. Color change to LIGHT OLIVE BROWN (2.5Y 3/3) Some oxide staining, trace roots

@ 7.5 Color change to DARK GREENISH GRAY (5G 4/1) Distinct hydrocarbon odor

GREENISH GRAY SANDY SILT (ML) (95G 4/1) Loose, moist, 70% silt, 30% fine to medium sand

GREENISH GRAY SILTY SAND (SM) (5G 4/1) Loose, moist, 70% fine to medium sand, 30% fines, strong hydrocarbon odor

DARK GREENISH GRAY SANDY SILT (ML) (5G 4/1) Soft, moist, 80% silt, 20% fine sand, strong hydrocarbon odor DARK GREENISH GRAY FAT CLAY (CH) (5G 4/1) Soft, moist, 80% clay, 20% silt

Sampled through a 2 inch P.V.C. screen. Screen interval from 11 to 16 feet. Groundwater Sample P13SCGW14F

JOB NUMBER

Log of Boring P13SCGW14

PRFTA 13 Site Investigation Parks Reserve Forces Training Area Dublin, California

CHCK'D DATE

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APPROVED APPRV'D DATE

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PLATE

Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Surface Elevation 340 ft. Date \_6/7/05 Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** GRAYISH BROWN SANDY LEAN CLAY WITH GRAVEL (CL) (2.5Y 5/2) Loose, dry, 60% clay, 30% fine to coarse sand, 10% angular gravel (Fill) VĚRY DĂRK GŘAÝ FAT CLAY (CH) (2.5Y 3/1) Very stiff, dry, 80% clay, 20% silt, trace fine sand, trace roots @ 4 ft Color change to OLIVE BROWN (2.5Y 4/3) DARK GRAYISH BROWN SANDY FAT

P13SCGW15F

CLAY (CH) (2.5Y 4/2) Soft, moist, 60% clay, 30% fine sand, 10% silt
-VERY DARK GRAYISH BROWN SILTY SAND (SM) (2.5Y 3/2) Loose, wet, 85% fine to medium sand, 15% silt

Hydropunch Sample: Screen interval from 12 to 16 feet. Ground water sample number P13SCGW15F.

BORING\_WELL\_MACTEC 3618048128\_CAMPPARKS.GPJ GEOL.GDT 1/6/06

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Log of Boring P13SCGW15A

PRFTA 13 Site Investigation Parks Reserve Forces Training Area Dublin, California

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Equipment Geoprobe Hole Diameter 2 inch Depth (ft.) Surface Elevation 340 ft. Logged By S. Tucker **GROUND SURFACE** sand, 20% fines BORING\_WELL\_MACTEC 3618048128\_CAMPPARKS.GPJ GEOL.GDT 1/6/06

Sample Method Continous Core Date 6/7/05 Reference Datum See Cointour Map GRAYISH BROWN SANDY LEAN CLAY WITH GRAVEL (CL) (2.5Y 5/2) Soft, dry, 50% clay, 30% fine to coarse sand, 20% angular gravel (Fill) ·VĚRY DĂRK GŘAÝ FAT CLAY (CH) (2.5Y 3/1) Hard, dry, 80% clay 20% silt, trace fine @ 4 ft. Color change to OLIVE BROWN (2.5Y 4/3) DARK GRAYISH BROWN SANDY FAT CLAY (CH) (2.5Y 3/2) Soft, moist, 60% clay, 30% fine sand, 10% silt DARK OLIVE BROWN SILTY SAND (SM) (2.5Y 3/3) Soft, wet, 80% fine to to coarse OLIVE BROWN FAT CLAY (CH) (2.5Y 4/3) Very firm, dry, 70% clay, 30% silt, trace fine



Log of Boring P13SCGW15B

PRFTA 13 Site Investigation Parks Reserve Forces Training Area Dublin, California

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Equipment Geoprobe Sample Method Continous Core Hole Diameter 2 inch Depth (ft.) Date 6/7/05 Surface Elevation 342 ft. Reference Datum See Contour Map Logged By D. Browne **GROUND SURFACE** GRAYISH BROWN SILTY SAND WITH GRAVEL (SC) (10YR 5/2) Loose, dry, 60% fine to medium sand, 20% silt 20% angular gravel (Fill) VERY DARK GRAY FAT CLAY (CH) (2.5Y 3/1) Very stiff, dry, 80% clay, 20% silt, trace fine sand, trace roots @ 6 ft. Color change to LIGHT OLIVE BROWN (2.5Y 3/3) @ 10 FT. Trace roots DARK GRAYISH BROWN SILTY SAND P13SCGW16F (SM) (2.5Y 4/2) Loose, wet, 70% fine sand, 30% silt DARK GRAYISH BROWN SANDY FAT CLAY (CH) (2.5Y4/2) Stiff, moist, 60% clay, 40% fine sand Hydropunch Sample: Screen interval from 11 to 16 feet. Ground water sample number P13SCGW16F.



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#### Log of Boring P13SCGW16

PRFTA 13 Site Investigation Reserve Forces Parks Reserve Forces Training Area Dublin, California

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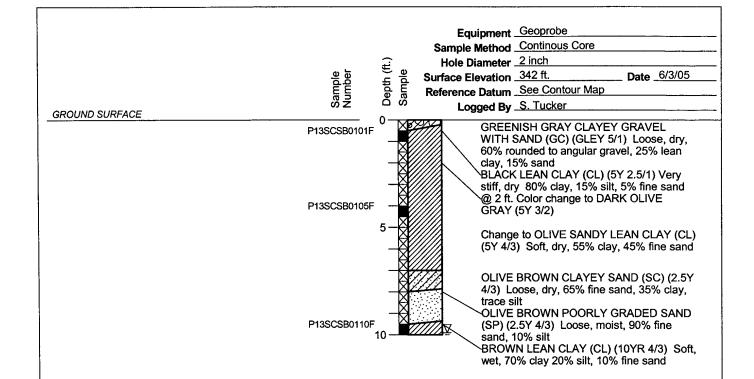
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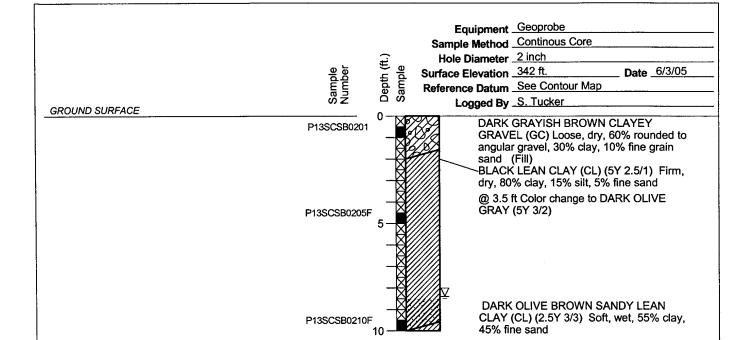
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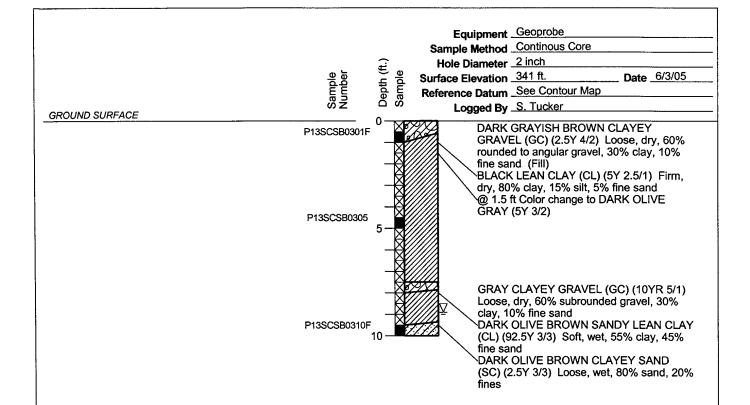
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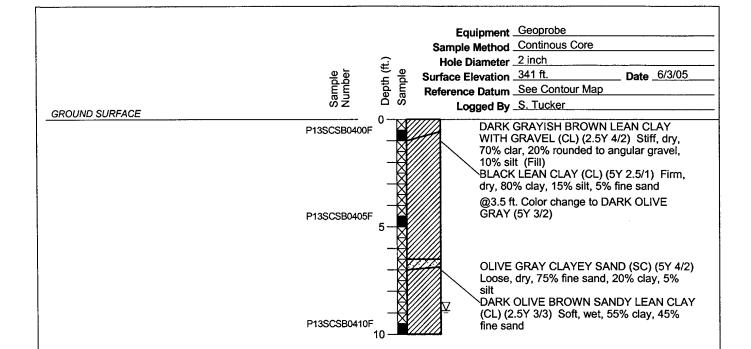
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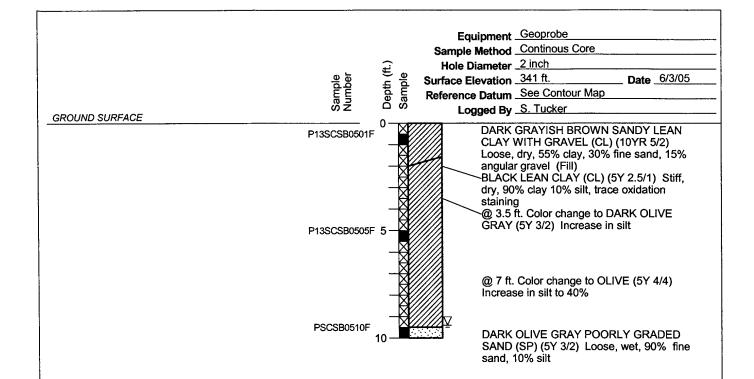
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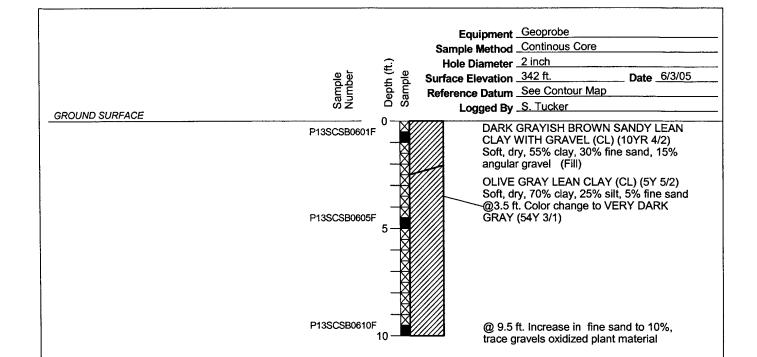
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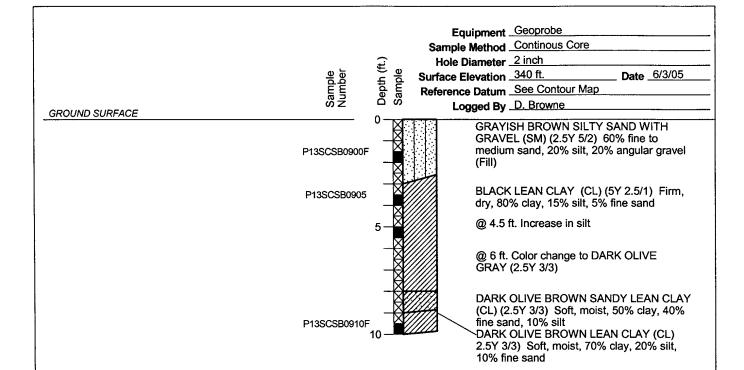
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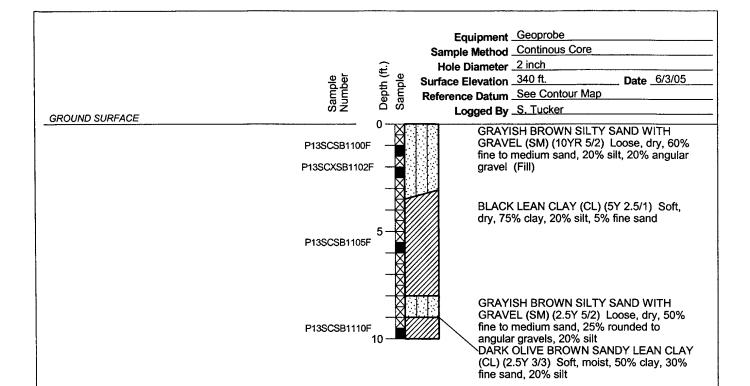
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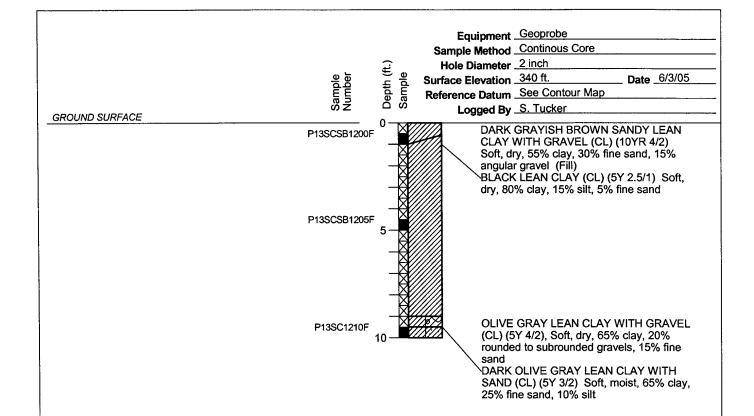
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Log of Boring P13SCSB12

PRFTA 13 Site Investigation Parks Reserve Forces Training Area Dublin, California

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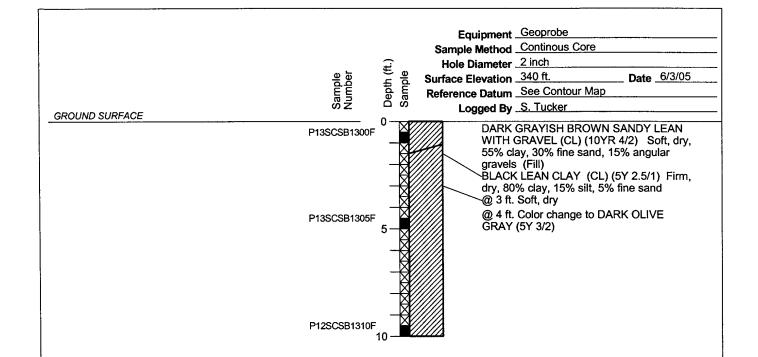
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PRFTA 13 Site Investigation Parks Reserve Forces Training Area Dublin, California

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# APPENDIX C DRILLING AND WELL ABANDONMENT PERMITS







#### ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100 NORTH CANYONS PARKWAY, LIVERMORE, CA 94551 July 18, 2005

PHONE (925) 454-5000

Ms. Beth Flynn MACTEC Engineering and Consulting 5341 Old Redwood Highway, Suite 300 Petaluma, CA 94954

Dear Ms. Flynn:

Enclosed are drilling permits 25079, 25080, 25083 and 25086 for contamination investigations at the locations listed below:

Permit	Location	Well #						
25079	Camp Parks (4 <sup>th</sup> St. & Fernandez Av), Dublin	16 hydropunch samplings						
25080	Camp Parks (4 <sup>th</sup> St. & Fernandez Av), Dublin	13 soil borings						
25083	Camp Parks (4 <sup>th</sup> St. & Fernandez Av), Dublin	3S/1E-6B25 to 3S/1E-6B29 monitoring wells						
25086	Camp Parks (4 <sup>th</sup> St. & Fernandez Av), Dublin	3S/1E-6B5, 6B8, 6B10 to 6B13 (6 destructions)						

Please note that permit condition A-2 and G requires that a report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, permit number and any analysis of soil or water samples. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact me at extension 5056 or Matt Katen at extension 5071.

Sincerely,

Wyman Hong

Water Resource Specialist

Enc.

05/12/2005 14:46

707-7933900

MACTEC

PAGE 05



# ZUNE / WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127 VOICE (925) 484-2800 X235 FAX (925) 462-3914

### DRILLING PERMIT APPLICATION

FOR APPLI	ICANT TO COMPLETE
Training Grag	CRETA ! 4th ST 1
California Coordinates Source CCN APN	Accuracys ft.
CLIENT Name 11.5 A COLUMN Address ONTH A FRAME City Sunday 190 Su	Environmental Center (USA E EMC - ENV Phone 175-1835-1683
APPLICANT Name MACTEC Engl	incering and Consulting
CHANGE SOO PERI	Zip 94954
TYPE OF PROJECT: Well Construction Well Destruction Cathodic Protection PROPOSED WELL USE:	Geotechnical Investigation Contamination Investigation Other Hydropyrch
Domestic ** Municipal ** Industrial ** Dewateding	Inigation Remediation Groundwater Monitoring Other
DRILLING METHOD: Mud Rotary Air Rota Cable Tool Direct F	tary · Hollow Stem Auger · Push 💥 Other
DRILLING COMPANY DRILLER'S LICENSE NO.	

Hole Diameter in. Depth 35 ft.

ESTIMATED STARTING DATE May 73, 200 5

ESTIMATED COMPLETION DATE May 27, 2005

iπ.

in.

ft

Maximum

Maximum

Depth

Numbe

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

**APPLICANT'S** 

WELL SPECIFICATIONS:

Drill Hole Diameter

Surface Seal Depth

Number of Borings

Casing Diameter

SOIL BORINGS:

SIGNATURE

Bethough Flyn 0

Date 5/4/05

ATTACH SITE PLAN OR SKETCH

PERMIT NUMBER	25079		
WELL NUMBER			
APN			

#### PERMIT CONDITIONS

Circled Permit Requirements Apply

#### GENERAL

- A permit application should be automitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
- Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
- Permit is void if project not begun within 90 days of approval date.

#### B. WATER SUPPLY WELLS

- Minimum aurisca seal diameter is four inches greater than the well casing diameter.
- Minimum seal depth is 50 feet for municipal and industriel wells or 20 feet for domestic and intigation wells unless a lesser depth is specially approved.
- 3. Grout placed by tremie.
- An access port at least 0,5 inches in diameter is required on the wellhead for water level measurements.
- A sample port is required on the discharge pipe near the wellhead.

# C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

- Minimum surface seal diameter is four inches greater than the well or plezometer casing diameter.
- Minimum seal depth for monitoring wells is the maximum dapth practicable or 20 feet.
- 3. Grout placed by tramie.
- D.) QEOTECHNICAL Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tramfed coment grout shall be used in place of compacted cuttings.
  - CATHODIC. Fill hole above anode zone with concrete placed by tremis.
    - WELL DESTRUCTION. See attached.
  - G. SPECIAL CONDITIONS: Submit to Zone 7 within 60 days after completion of permitted work the well installation report including all soil and water laboratory analysis results.

Approved Mynan Hong Deta 5/23/05

05/12/2005 14:46

707-7933900

MACTEC

PAGE 02



# ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588-5127 VOICE (925) 484-2600 X235 FAX (925) 462-3914

## **DRILLING PERMIT APPLICATION**

FOR APPLICANT TO COMPLETE	FOR OFFICE USE
COCATION OF PROJECT Parks Reserve Forces	PERMIT NUMBER 25080 WELL NUMBER APN
California Coordinates Source Accuracys ft. CCN ft. APN	PERMIT CONDITIONS
CLIENT Name U. LATTE ENVIRONMENT CONSCIPUTE Address ATM: RES - RC-ENV Prioris 21 Dec 168 City Radden 10 Dublin G Zip 9777 B-168 City Radden 10 Dublin G Zip 9777 B-168 APPLICANT Name MACTE Engineer Huse Phone 70 - 173 - 360 Address E 241 Old Recheral Huse Phone 70 - 173 - 360 City Suppose Pataluna C Zip 249 C Zip 24	Circled Permit Requirements Apply  A GENERAL  1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting data.  2. Submit to Zone 7 within 60 days after completion of permitter work the original Department of Water Resources Water Wester Report or equivalent for well projects, or drilling log and location sketch for geotechnical projects.  3. Permit is void if project not begun within 90 days of approved date.  8. WATER SUPPLY WELLS  1. Minimum surface seal diameter is four inches greater than the well begun diameter.  2. Minimum seal depth is 50 feet for municipal and industrial well or 20 feet for domestic and infigation wells unless a lesser daping is specially approved.  3. Grout placed by tremie.  4. An access port at least 0.5 inches in diameter is required on the wellthead for water level measurements.  5. A sample port is required on the discharge pipe near the wellthead.  C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS  1. Minimum surface seal diameter is four inches greater than the well or plezometer casing diameter.  2. Minimum seal depth for monitoring wells is the maximum depth for maxi
DRILLER'S LICENSE NO.  WELL SPECIFICATIONS: Drill Hole Diameter in. Maximum Casing Diameter in. Depth ft. Surface Seal Depth ft. Number  SOIL BORINGS: Number of Borings 13 Maximum Hole Diameter in. Depth 15 ft.  ESTIMATED STARTING DATE Max 23, 2005 ESTIMATED COMPLETION DATE 1124, 27, 2005	practicable or 20 feet.  3. Grout placed by tremie. GEOTECHNICAL Backfill bore hole with compacted cuttings of heavy bentonite and upper two feet with compacted material. It areas of known or suspected contamination, tremied cement growth be used in place of compacted cuttings.  E. CATHODIC. Fill hole above anode zone with concrete placed to tremie.  WELL DESTRUCTION. See attached.  SPECIAL CONDITIONS:, Submit to Zone 7 within 80 days after completion of permitted work the well installation report including a soil and water laboratory analysis results.
I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.  APPLICANT'S SIGNATURE BYANGE PLAN OR SKETCH	Approved Wyman Hong Date 5/23/05

# **ZONE 7 WATER AGENCY**



100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 454-5728

# DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE	FOR OFFICE USE
LOCATION OF PROJECT PARKS RESERVE FORCES  TRANSPORTED ACCURACY:  California Coordinates Source  CCN  R. ACCURACY:  R. APPN	PERMIT NUMBER 25086  WELL NUMBER 3S/1E-6B5, 6B8, 6B10 to APN  PERMIT CONDITIONS
CLIENT  Name U.S. Army Environmental Contr (USAEC)  Address Drn: AFRG-PMC-Env Proreas: -235-3682  City Environmental Contr (USAEC)  APPLICANT  Name Macter Engineering and  Consulting For Page 107-393-3880  Address 5 341 AFO Reduced In Prore 30 3 -343-3834  City Surk 300 Retailmen Go Zip 94954	A. GENERAL  1. A permit application should be submitted so Zona 7 office five days prior to proposed st  2. Submit to Zone 7 within 60 days after comwork the original Department of Water Responded to the Project and location sketch for geotechnical project 3. Permit is void if project not begun within 9
TYPE OF PROJECT:  Well Construction  Well Destruction  Cathodic Protection  PROPOSED WELL USE:  Geotechnical investigation Contamination investigation Other	date.  B. WATER SUPPLY WELLS  1. Minimum surface seal diameter is four inchwell casing diameter.  2. Minimum seal depth is 50 feet for municipal or 20 feet for domestic and irrigation wells u is specially approved.
Domestic Irrigation Municipal Remediation Industrial Groundwater Monitoring Dewatering Other  DRILLING METHOD: Mud Rotary Air Rotary Hollow Stem Auger Cable Tool Direct Push Other  DRILLING COMPANY	<ol> <li>Grout placed by tremie.</li> <li>An access port at least 0.5 inches in diame on the wellhead for water level measurements.</li> <li>A sample port is required on the discharge wellhead.</li> <li>GROUNDWATER MONITORING WELLS INCOMETERS</li> <li>Minimum surface seal diameter is four income well or plezometer casing diameter.</li> <li>Minimum seal depth for monitoring wells is</li> </ol>
WELL SPECIFICATIONS: Drill Hole Diameter in. Maximum Casing Diameter in. Depth ft. Surface Seal Depth ft. Number 6  SOil BORINGS: Number of Borings Maximum Hole Diameter in. Depth ft.	practicable or 20 feet. 3. Grout placed by tremle. D. GEOTECHNICAL. Backfill bore hole with cone heavy bentonite and upper two feet with cone areas of known or suspected contamination, to shall be used in place of compacted cuttings. E. CATHODIC. Fill hole above anode zone with tremie. WELL DESTRUCTION. See attached. SPECIAL CONDITIONS. Submit to Zone 7
ESTIMATED STARTING DATE MAY 23, 2005 ESTIMATED COMPLETION DATE MAY 23, 2005 I hereby agree to comply with all requirements of this permit and Alamedia County Ordinance No. 73-68.  APPLICANT'S SIGNATURE  Bethree Palm Date 5/4/65	completion of permitted work the well installar all soil and water laboratory analysis result  Approved  Wyman Hong
ATTACH SITE PLAN OR SKETCH	( )

FOR OFFICE LICE

6B13

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pletion of permitted ources Water Well icts, or drilling logs cts.

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concrete placed by

within 60 days after tion report including

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# APPENDIX D ANALYTICAL RESULTS





#### Level III Review Summary Camp Parks Columbia Analytical 2005

Soil and water samples were collected June 3-7, and July 15, 2005 and submitted under chain of custody (COC) to Columbia Analytical Laboratory in Redding, California for the following analyses:

TPH-Diesel by EPA Test Method 8015B

The results of these 57 samples were reported by the laboratory under sample delivery group (SDG) numbers DF075, DF076, DF077, DF084, DF094 and DF369. The reported data were reviewed by the laboratory and Mactec Data Validation personnel. Mactec validation personnel reviewed the data for compliance with established laboratory control limits and method compliance in accordance with Environmental Protection Agency (EPA) Level III review. The following parameters are reviewed under the Level III review:

- Analytical holding time compliance
- Condition and preservation of samples upon release to laboratory
- Laboratory Quality Control sample results including method blanks, laboratory control spike (LCS) recoveries, matrix spike and matrix spike duplicate recoveries and surrogate recovery results
- Initial and continuous calibration results including ICV, CCV and CCB recoveries (where applicable)
- Field Quality Control sample results, including trip blanks, equipment blanks, and field duplicate samples (where applicable)
  - COC and data report review for completeness

The following sections summarize the findings of the Level III review for each analytical method:

#### TPH-Diesel by EPA Test Method 8015B:

#### **Analytical Holding Times:**

 Project samples were analyzed within the method specified analytical holding times, extracted within 14 days and analyzed within 40 days.

#### Condition and Preservation of Samples

- Samples were received by the laboratory in good condition and within preservation criteria of 4° C with the following exceptions:
  - Soil samples from SDGs DF369, DF076, and DF077 were received in plastic sleeves rather than glass or metal. Per instructions from the MACTEC project manager, the laboratory proceeded with analysis.

#### **Laboratory Quality Control Samples:**

- Laboratory method blank samples analyzed with project samples were non-detect for target compounds.
- Laboratory Control Spike samples analyzed with project samples were within acceptance limits

- Matrix spike/matrix spike duplicate samples analyzed with project samples were within acceptance limits with the exception of the following:
  - The matrix spike recovery for sample P13SCSB0810F was outside of control limits. The diesel concentration in sample was 4 times greater than the spike amount used for QC samples and validation qualification was not necessary.
- Laboratory duplicate samples were not analyzed with this data set.
- Surrogate recoveries were within acceptance limits for project samples with the following exceptions:
  - Control criteria were exceeded for surrogates: Octacosane and Triacontane in sample P13SCB1100F. Due to presence of non-target background compounds accurate quantitation was not possible.
  - The control criteria for surrogates: Octacosane and Triacontane in samples P13SCGW111F and P13SCGW13F are not applicable. The analysis of these samples required a dilution which resulted in a surrogate concentration below the Method Reporting Limit (MRL)

#### Initial and Continuing Calibration Verification Results:

- Initial Calibration Verification (ICV) and Continuing Calibration Verification (CCV) results were within acceptance criteria with the following exceptions:
  - The upper control criterion was exceeded for surrogate Octacosane in CCV associated with SDGs DF075, DF077 and DF084. Surrogate results in associated samples and QC met acceptance criteria and validation qualification was not necessary.
  - The upper control criterion was exceeded for both surrogates Octacosane and Triacontane in SDG DF076. Surrogate results in associated samples and QC met acceptance criteria and validation qualification was not necessary.

#### Field Quality Control Samples:

- Trip blank samples were not submitted for analysis by this test method
- Equipment blank samples were not submitted for analysis by this test method
- Field duplicate samples were not submitted for analysis by this test method

#### Completeness:

- The chain of custody (COC) submitted with each shipment of samples was complete and free of errors with the following exceptions:
  - o On COC #1110, the matrix of the samples was either unmarked or marked as water. The samples are soil matrix.
  - On COC #1116, date and time discrepancies were noted versus sample labels.
     Per instruction from the project manager, dates and times from COC were used.
- The laboratory reported results as requested on the COC for each shipment of samples, and is considered complete.
- The laboratory did not perform silica gel cleanup during preparation of soil samples as requested in the Quality Assurance Project Plan (QAPP). Samples were received and prepared prior to Columbia Analytical receiving QAPP.

#### Summary

The findings of the level III data review performed on the samples in this data set indicate that the data are usable as reported by the laboratory and of sufficient quality to support decisions.



# **AMENDMENT REPORT**

Client: MACTEC INC.

Project: MACTEC/CAMP PARKS

Date: 8/9/2005

Batch: DF075

Tier: 3

Dept: CL SERV

E-Data: NOT REQUIRED

Initiated By: Douglas Burnett

Completed By: Douglas Burnett

Approved By: Douglas Burnett

REASON: Client Request

1. Amend case narrative to include comment about soil samples received in plastic sleeves rather than glass or metal

2. Amend case narrative to include comment on why Silica Gel cleanup was not performed.

3. Supply Chromatograms

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project:

Sample Matrix:

MACTEC

Camp Parks

Soil/Water

Service Request No.:

DF075

Date Received:

6/4/05

#### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

One water sample and eighteen soil samples were received for analysis at Columbia Analytical Services on 6/4/05. The following discrepancies were noted upon initial sample inspection:

- On COC #1106 and #1107, several samples were denoted by the geographic identifier of '913'. The sample labels denoted the geographic identifier as 'P13'. Per instruction with the project manager on 6/6/05, all geographic identifiers should read 'P13'.
- Soil samples were received in plastic sleeves rather than glass or metal. Per instruction from the project manager on 6/6/05, proceed with analysis.

The samples were received in good condition and otherwise consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

#### **Continuing Calibration Verification Exceptions:**

The lower control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G062014 (6/22/05 02:47): Octacosane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected.

#### **Surrogate Exceptions:**

The upper control criterion was exceeded for the following surrogates in samples P13SCSB0110F and the matrix spike duplicates P13SCSB0110FMSD: Octacosane and Tetracontane. No target analytes were detected in the sample. The error associated with an elevated recovery equates to a high bias. The quality of the sample data is not significantly affected. No further corrective action was appropriate.

#### **Elevated Method Reporting Limits:**

Sample P13SCSB0601F required dilution due to the presence of elevated levels of TPH-Diesel. The reporting limits are adjusted to reflect the dilution.

#### **General Notes and Discussion:**

Silica gel cleanup was not performed during preparation of these samples as requested in the QAPP. Samples were received into the laboratory on 6/4/05, prepared on 6/8/05; QAPP was received by CAS on 6/14/05.

Samples P13SCSB0601F and P13SCSB0105F contained an unknown hydrocarbon pattern within the Diesel Fuel range, but did not resemble Diesel Fuel. The samples were quantitated and reported as TPH-Diesel (C10-C24).

Approved by: Date: 8-5-05



David Browne MACTEC Inc. 5341 Old Redwood Highway Suite 300 Petaluma, CA 94954

5090 Caterpillar Road

Columbia Analytical Services Report Camp Parks Dublin DF050075/DF075 37868

(530) 244-5227 ph

July 1, 2005

Submitted by:

Douglas Burnett

Project Manager/Client Services

The test results provided in this data package meet the requirements of the NELAC Standards unless noted in the case narrative report.

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Continuing calibration summary	
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# **Current CAS Redding Accreditation Programs**

#### Federal and National Programs

U.S Air Force, Air Force Center for Environmental Excellence (AFCEE) Approved laboratory for Wastewater and Hazardous Waste

U.S. Army Corps of Engineers – MRD, HTRW Mandatory Center of Expertise Validated for Wastewater and Hazardous Waste

Department of the Navy, Naval Facilities Engineering Service Center (NFESC) Approved laboratory for Wastewater and Hazardous Waste

#### State and Local Programs

State of Arizona, Department of Health Services

Approved laboratory for Hazardous Waste Lab ID# AZ0604

State of Arkansas, Department of Environmental Quality

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# None

State of California, Department of Health Services, National Environmental Laboratory Accreditation Program (NELAP)

> Approved laboratory for Drinking Water, Wastewater and Hazardous Waste Lab ID# 01105CA

Los Angeles County Sanitation District

Approved laboratory for Wastewater

Lab ID# 10243

State of Florida, Department of Health (NELAP)

Approved Environmental Testing Laboratory for Wastewater and Hazardous Waste Lab ID# E87203

State of Kansas, Department of Health and Environment (NELAP)

Approved laboratory for Hazardous Waste

Lab ID# E-10323

State of Massachusetts, Department of Environmental Protection

Approved laboratory for Drinking Water, Wastewater

Lab ID# M-CA025

State of Oklahoma, Department of Environmental Quality

Approved laboratory for General Water Quality/Sludge Testing Lab ID# 9952

State of Oregon, Department of Human Resources, Health Division (ORELAP)

Approved laboratory for Drinking Water, Wastewater, and Hazardous Waste Lab ID# CA200004

State of Utah, Department of Health, Division of Laboratory Services (NELAP)

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# QUAL1

State of Washington, Department of Ecology, Environmental Laboratory Accreditation Program Approved laboratory for Wastewater and Hazardous Waste Lab ID# C037

State of Wisconsin, Department of Ecology

Approved laboratory for Wastewater and Hazardous Waste Lab ID# 999767340

## Organic Data Qualifiers

- A -- This qualifier indicates that a TIC is a suspected aldol-condensation product
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.
- C The "C" flag indicates the presence of this compound has been confirmed by the GC/MS analysis.
- D This qualifier is used for all the compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.
- E This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at the appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.
- I The qualifier indicates that the reporting limit to the "I" qualifier has been raised. It is used when the chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.
- J Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).
- N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for Tentatively Identified Compounds (TIC), where the identification is based on a mass spectral library research. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.
- P -- This qualifier is used for target analytes when there is a greater than 40% difference for detected concentrations between the two columns or detectors. The concentration value is reported on Form I and flagged with a "P".
- U Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

### Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analysis are defined below:

- DL Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. A digit to indicate multiple dilutions of the sample or extract may follow the "DL" suffix. The results of more than one diluted reanalysis may be reported.
- MS Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- MSD Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- R Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalysis of the sample at the same dilution.
- RE Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analysis of the same sample at the same dilution.

#### Sample ID Cross-reference Table

CAS Lab Sample	ID	Client Sample ID	Receive Date	Collect Date		Sample Matrix		Additiona	ıl Des	cription	
FS = Field	Samp	le; MS = Matr	ix Spike;	MSD = Ma	trix Sp	oike Duplicate;	NON =	: Non-Sample	Туре	(Internal	Admin)
DF075001	FS	P13SCSB0201F	06/04/05	06/03/05	09:55	Soil					
DF075002	FS	P13SCSB0205F	06/04/05	06/03/05	10:00	Soil					
DF075003	FS	P13SCSB0210F	06/04/05	06/03/05	10:10	Soil					
DF075004	FS	P13SCSB0301F	06/04/05	06/03/05	10:15	Soil					
DF075005	FS	P13SCSB0305F	06/04/05	06/03/05	10:25	Soil					
DF075006	FS	P13SCSB0310F	06/04/05	06/03/05	10:30	Soil					
DF075007	FS	P13SCSB0400F	06/04/05	06/03/05	10:40	Soil					
DF075008	FS	P13SCSB0405F	06/04/05	06/03/05	10:45	Soil					
DF075009	FS	P13SCSB0410F	06/04/05	06/03/05	10:50	Soil					
DF075010	FS	P13SCSB0400R	06/04/05	06/03/05	11:10	Water					
DF075011	FS	P13SCSB0601F	06/04/05	06/03/05	08:20	Soil					
DF075012	FS	P13SCSB0605F	06/04/05	06/03/05	08:30	Soil					
DF075013	FS	P13SCSB0610F	06/04/05	06/03/05	08:35	Soil					
DF075014	FS	P13SCSB0501F	06/04/05	06/03/05	09:00	Soil					
DF075015	FS	P13SCSB0505F	06/04/05	06/03/05	09:05	Soil					
DF075016	FS	P13SCSB0510F	06/04/05	06/03/05	09:10	Soil					
DF075017	FS	P13SCSB0100F	06/04/05	06/03/05	09:30	Soil					
DF075018	FS	P13SCSB0105F	06/04/05	06/03/05	09:35	Soil					
DF075019	FS	P13SCSB0110F									

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

# CASE NARRATIVE

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

MACTEC

Project: Sample Matrix: Camp Parks Soil/Water Service Request No.:

DF075

Date Received:

6/4/05

#### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

One water sample and eighteen soil samples were received for analysis at Columbia Analytical Services on 6/4/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

#### **Continuing Calibration Verification Exceptions:**

The lower control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G062014 (6/22/05 02:47): Octacosane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected.

#### **Surrogate Exceptions:**

The upper control criterion was exceeded for the following surrogates in samples P13SCSB0110F and the matrix spike duplicates P13SCSB0110FMSD: Octacosane and Tetracontane. No target analytes were detected in the sample. The error associated with an elevated recovery equates to a high bias. The quality of the sample data is not significantly affected. No further corrective action was appropriate.

#### **Elevated Method Reporting Limits:**

Sample P13SCSB0601F required dilution due to the presence of elevated levels of TPH-Diesel. The reporting limits are adjusted to reflect the dilution.

#### **Sample Notes and Discussion**

Samples P13SCSB0601F and P13SCSB0105F contained an unknown hydrocarbon pattern within the Diesel Fuel range, but did not resemble Diesel Fuel. The samples were quantitated and reported as TPH-Diesel (C10-C24).

Approved by: Date: 1-5-05

### CHAIN OF CUSTODY DOCUMENTATION

<250148 Seq. No.: № 1107 MACTEC

5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954 CHAIN OF CUSTODY FURM Lab: gr Columbia Samplers: David Browne/Scatt Tucker (707) 793-3800 DF075 1+2 36,18048128,02 Job Number: CAMP Park Dublin Name/Location: ANALYSIS REQUESTED Recorder: <u>David Browne</u> Beth Flynn Project Manager: (Signature Required) # CONTAINERS MATRIX & PRESERV. DATE SAMPLE NUMBER STATION DESCRIPTION H2S04 Water Soil HCL HCL 1 AB Ą **DEPTH** YR SEQ YR MO DAY TIME 3 0F05060 B03017050603 CS80305 F0506031025 65310 F0506031030 SC580400F050603 W ADDITIONAL INFORMATION CHAIN OF CUSTODY RECORD SAMPLE NUMBER SEQ TURNAROUND TIME/ REMARKS (Print Name) (Company) YR Relinquished By (Signature) MACRE 43/05 1630 David Zvorne David Browne BING (A STANDARP TAT (Company) 03/05 1715 VIA 400-6/1 CAS (Company) Received By (Signature) 1040 Date/Time Relinquished By (Signature) (Company)

O F1008-B (5/04)

Laboratory Copy White Project Office Copy Yellow Field or Office Copy Pink

Method of Shipment: VIA FED-EV

Received By (Signature)

(Print Name)

Date/Time

(Company)

5341 Old Redwood Highway

CHAIN OF CUSTODY FURM

eer, eleritee, et a marie
Suite 300
Petaluma, CA 94954
(707) 793-3800

Samplers: Dovid Browne Scott Tucker

Seq. No.: No 1106

Lab: Columbia Bray Heal

b Numb	er:	3618048128,02			,	DF075	242
ame/Loc	ation:	CAMP Parks Du	blin			ANALYSIS REQUE	STED
roject Ma	anager:	Beth Flynn	Recorder: <u>Durid Sco</u> (Signature Required)	une			
, MAŢRIX	# CONTAINER & PRESERV		DATE	074710112500212710	0		
Soil	Unpres. H2SO4 HNO3 HCL	YR SEQ	YR MO DAY TIME	STATION DESCRIPTION	DEPTH T		4AB
			F0506030820		X		- //
1		P13666806056	-0506030830				2
X			F0504030835				13
X	1		F0506630900				14
X		P13565B0505	10506030905	-	$ \hat{\mathbf{x}} $		
X		P135CSB0510	F0506030910		X		16
4		P135C5B0100	-0506030930				12
X	1	P135C5B0105	F0506030935				8
		91356530110	170506630940				19
1							
	AMPLE NUMBER	ADDITIONAL INFORMATION			CHAIN OF CUSTOD	Y RECORD	
- <del></del>	SEQ	···				-	
YR	SEQ		ID TIME/ REMARKS	Relinquished By (Signature)	(Print Name) Dwid Brown	(Company)  NATE	Date/Time  6/3/05 1630  Date/Time
-		STANDIARD T	B)	Received By (Signature)	(Print Name)	(Company)	Date/Time
				Relinquished By (Signature)		(6/3/05 1631 (Company)	/ Detailline 1
				PAGE	(Print Name)	CAS 6/3/0.	Date/Time
				Received By (Signature)	(Print Name)	(Company)	Date/Time
				Relinquished By (Signature)	(Print Name)	(Company)	Date/Time
				Received By (Signature)	(Print Name)	(Сотрапу)	Date/Time

Laboratory Copy F1008-B (5/04) White

Project Office Copy Yellow

Field or Office Copy Pink

Method of Shipment: VIA FED-EX



5090 Caterpillar Road Redding, CA 96003 Phone: (530) 244-5262

Fax #: (530) 244-4109

#### **COOLER RECEIPT FORM**

roject	t/Client: MACTEC / CAMP PARKS B	atch No.: DF075
• ,	Cooler(s)/Sample(s) received on:	hipped via: FX
	Shipping Bill # (s): <u>2358 /545 //55</u> #	of Coolers/Packages
•	Radiological Screening by	Acceptable Rejected
•	Custody seals on outside of cooler:  If yes, where? Front Rear Lt Side Rt Side	NO N/A
	Seals intact:	NO NO
	COOLER/SAMPLE PROCESSING	G
	Sample Processing/Tagging by:	
	Cooler(s)/Sample(s) Temp's:	
	Type of packing material (circle): Ice Blue Ice Bubble Wrop Bubble	e Bags Zip Locks Webbing
	Other:	
	Custody papers properly filled out (ink, signed, dated, released, etc.)?	YES NO
	Containers arrived in good condition (not broken, leaking, etc.)?	XES NO
	Samples received with adequate holding time remaining to conduct analysis?	NO NO
) <b>.</b>	Container labels complete (i.e. analysis, preservation, date/time, etc.)?	ØES NO
()	Container labels and tags agree with custody papers?	yes No
	Correct types of containers used for the tests indicated?	YES ME
	a.) Adequate sample received? If not, note on Exception Report.	XES NO
	Containers supplied by:	CAS Other
١.	Preserved containers received with the appropriate preservative?	YES NO N/A
	pH: (or) See pH log.	
5.	VOA vials free of air bubbles?	YES NO NA
6.	Trip Blank preparation date:	CAS Other NA
7. `	Volatile Soil samples: Encores or Plugs in Vials	
-	Freezer or GC/MS Date:	Time: NA

See Exception Report for discrepancies.

Rev. 8/18/2004/ds

## GC TPH DIESEL

Sample Data

CLIENT ID.

P13SCSB0201F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075001

Matrix: SOIL

LOW

Level:

Lab File ID:

F0620009

Sample Wt/Vol: 50.4 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

1 ML

% Moisture: not dec. 23

Date Analyzed: 06/20/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RESULT CAS NO. COMPOUND RLQ PHCC10C24---TPH-DIESEL (C10-C24)\_ 0.82 13 3.4 J

FORM I SV-1

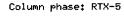
Page 3

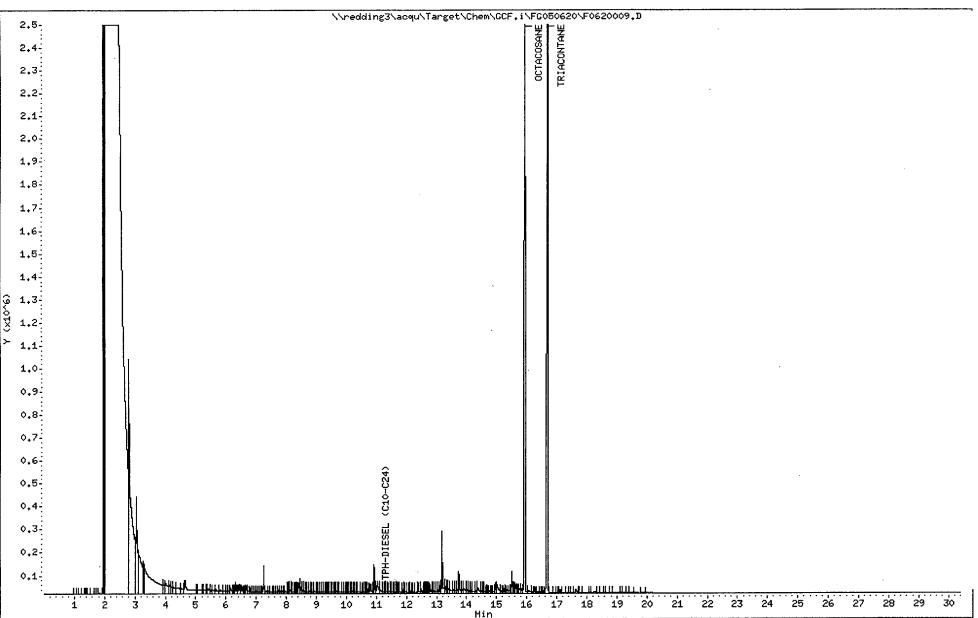
Data File: \\redding3\acqu\Target\Ch

Date : 20-JUN-2005 22:38 Client ID: P13SCSB0201F Sample Info: DF075001

Instrument: GCF.i

Operator:





CLIENT ID.

P13SCSB0205F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075002

Matrix: SOIL

Level: LOW Lab File ID:

F0620010

Sample Wt/Vol: 50.5 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

% Moisture: not dec. 21

Date Analyzed: 06/20/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg	/Kg MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL	(C10-C24)	0.80	12	3.6	J

FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620010.D

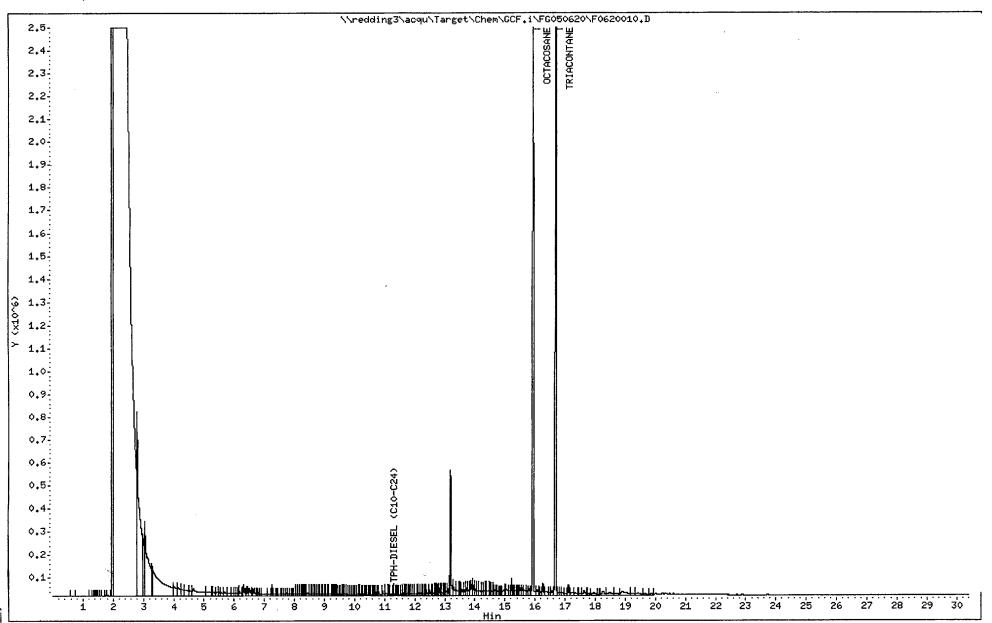
Date : 20-JUN-2005 23:18 Client ID: P13SCSB0205F Sample Info: DF075002

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



LOW

CLIENT ID.

P13SCSB0210F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075003

Matrix: SOIL Level:

Lab File ID:

F0620011

Sample Wt/Vol: 50.4 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 17

Date Analyzed: 06/20/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDLRLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24) 0.76 U 12 12

FORM I SV-1

Page 3

Data File: \\redding3\acqu\Target\Cr

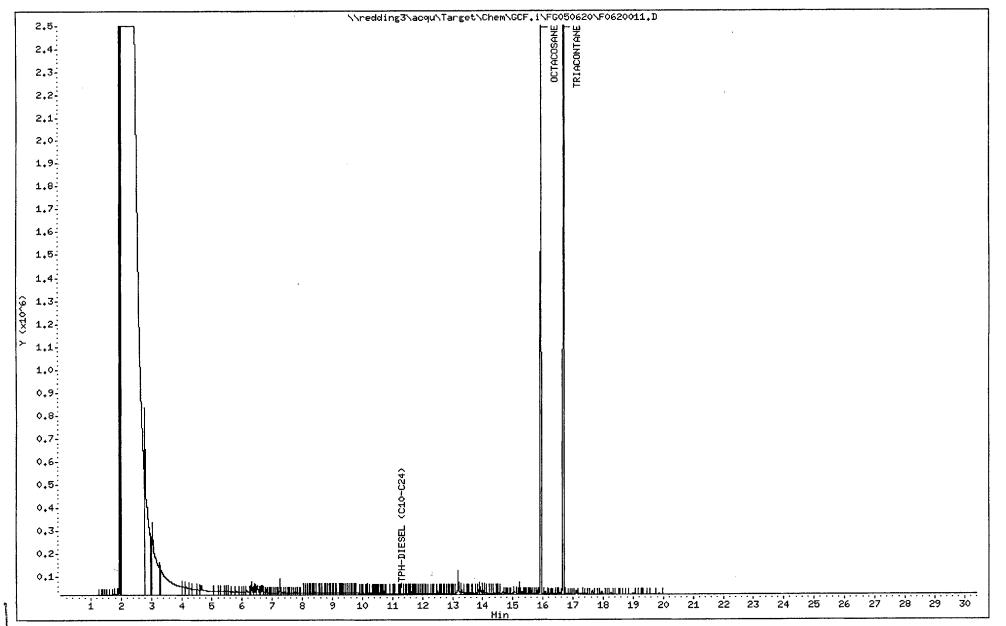
Date : 20-JUN-2005 23:57 Client ID: P13SCSB0210F Sample Info: DF075003

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



LOW

CLIENT ID.

P13SCSB0301F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075004

Matrix: SOIL

% Moisture: not dec. 26

Level:

Lab File ID:

F0620012

Sample Wt/Vol: 49.8 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RLRESULT

PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_

0.86

14

14

Q

U

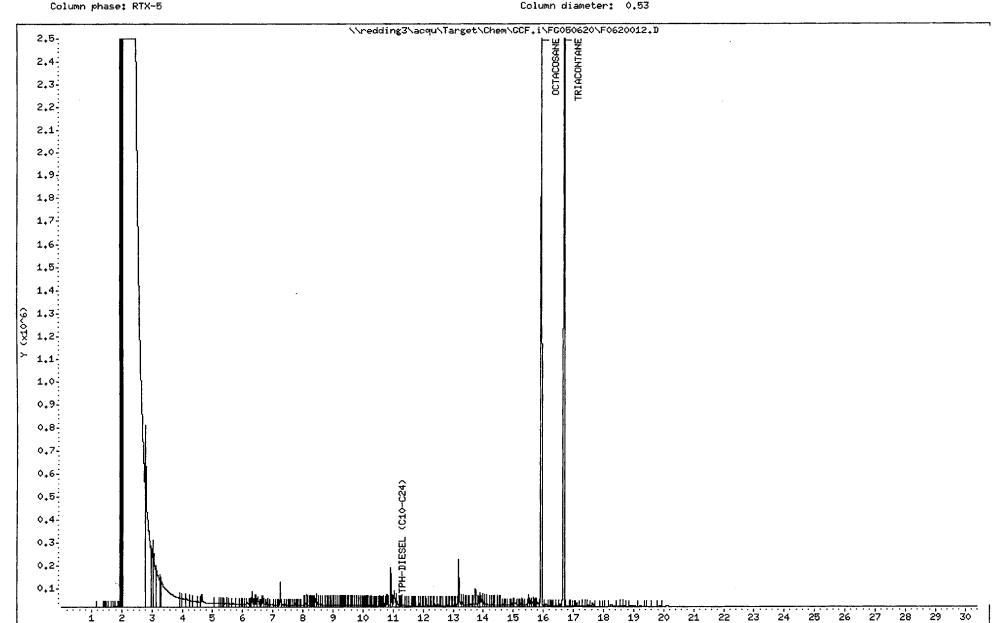
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620012.D

Date : 21-JUN-2005 00:37 Client ID: P13SCSB0301F Sample Info: DF075004

Instrument: GCF.i

Operator:



CLIENT ID.

P13SCSB0305F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075005

Lab File ID:

Matrix: SOIL

Level: LOW

F0620013

Sample Wt/Vol: 50.6 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

% Moisture: not dec. 24

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. COMPO	OUND Units: mg/F	g MDL	RL	RESULT	Q
PHCC10C24TPH-I	DIESEL (C10-C24)	0.83	13	13	U

FORM I SV-1

Page 3

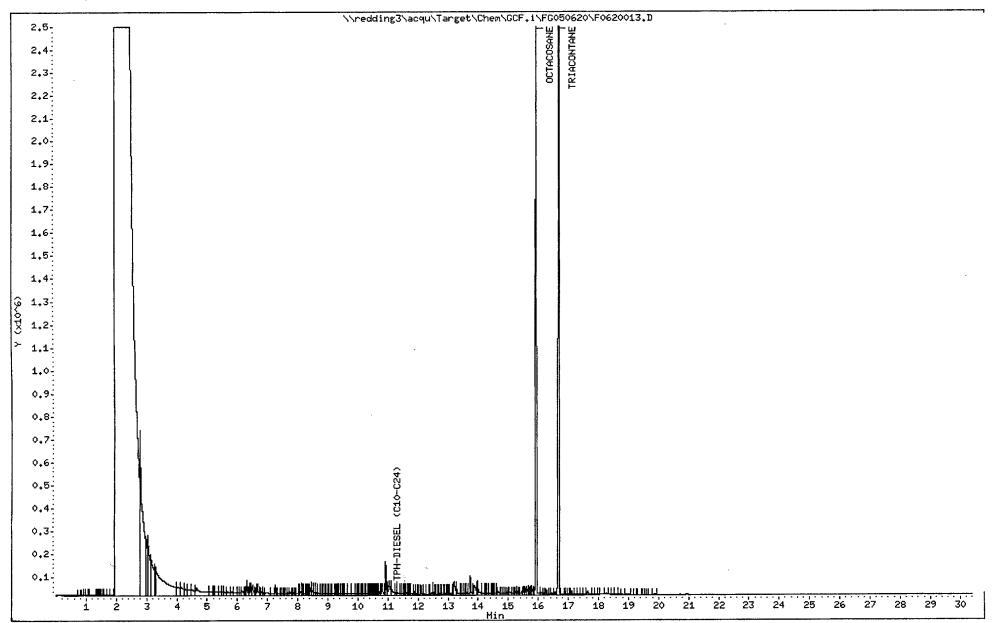
Data File: \\redding3\acqu\Target\C|

Date : 21-JUN-2005 01:16 Client ID: P13SCSB0305F Sample Info: DF075005

Instrument: GCF.i

Operator:

Column phase: RTX-5 Column diameter: 0.53



CLIENT ID.

P13SCSB0310F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075006

LOW

Matrix: SOIL

Level:

Lab File ID:

F0620014

Sample Wt/Vol: 50.1 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 19

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.78	12	12	υ

FORM I SV-1

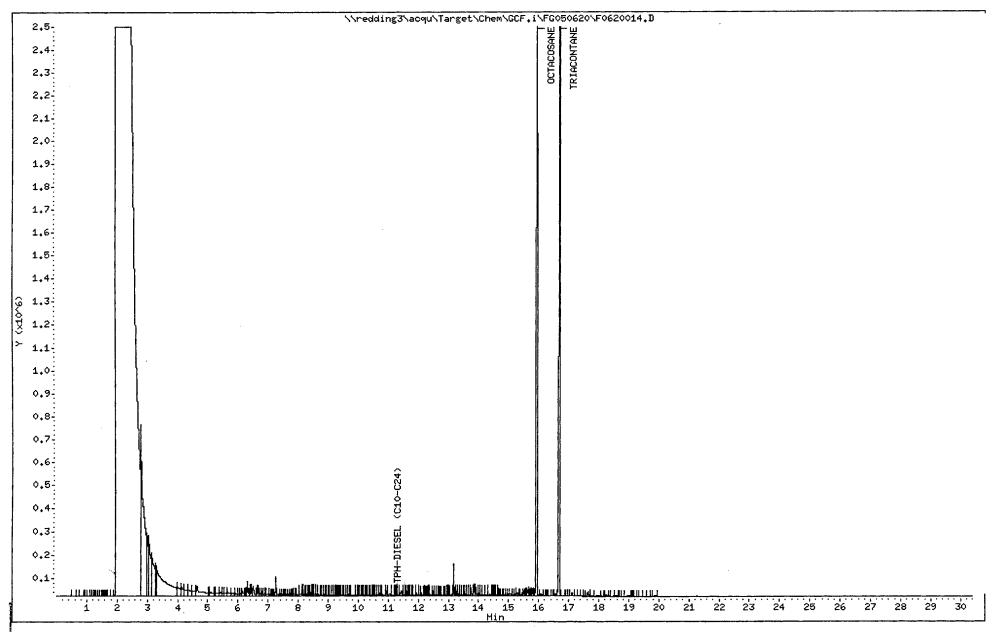
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620014.D

Date : 21-JUN-2005 01:56 Client ID: P13SCSB0310F Sample Info: DF075006

Instrument: GCF.i

Operator:

Column phase: RTX-5



LOW

CLIENT ID.

P13SCSB0400F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075007

Matrix: SOIL

Level:

Lab File ID:

F0620015

Sample Wt/Vol: 49.4 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

1 ML

% Moisture: not dec. 19

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.79	12	12	υ

FORM I SV-1

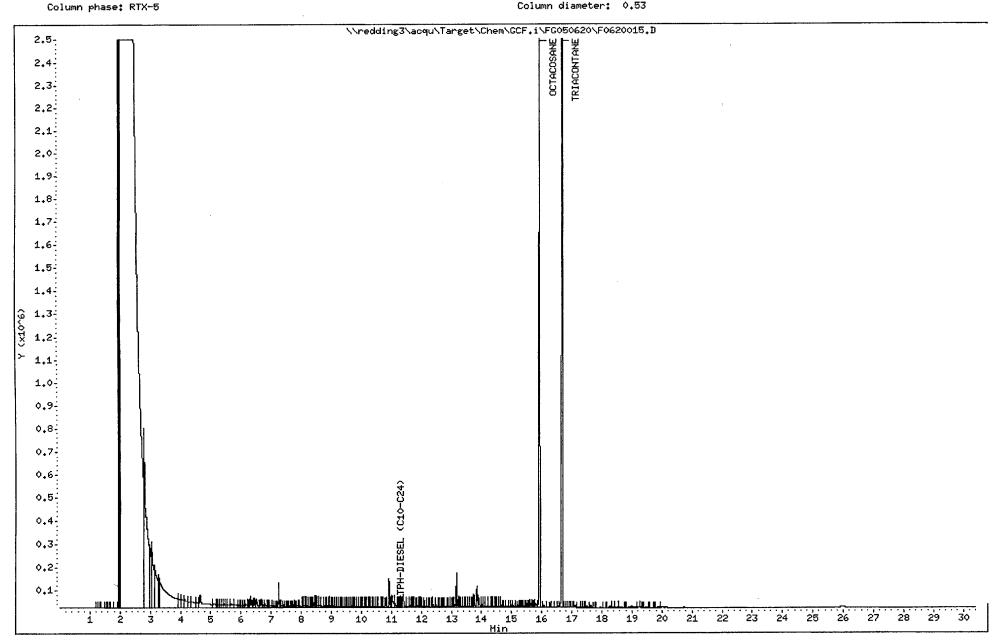
Page 3

Data File: \\redding3\acqu\Target\Cr

Date : 21-JUN-2005 02:36 Client ID: P13SCSB0400F Sample Info: DF075007

Instrument: GCF.i

Operator:



CLIENT ID.

P13SCSB0405F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Lab Sample ID: Case No.: DF075 SDG No.: DF075 DF075008

Lab File ID: LOW F0620017 Matrix: SOIL Level:

Sample Wt/Vol: 50.5 G Date Collected: 06/03/05

Date Extracted: 06/08/05 Extract Vol: 1 ML

Date Analyzed: 06/21/05 % Moisture: not dec. 31

Dilution Factor: 1.0 Extraction Type: SONICATION

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.91	14	14	บ

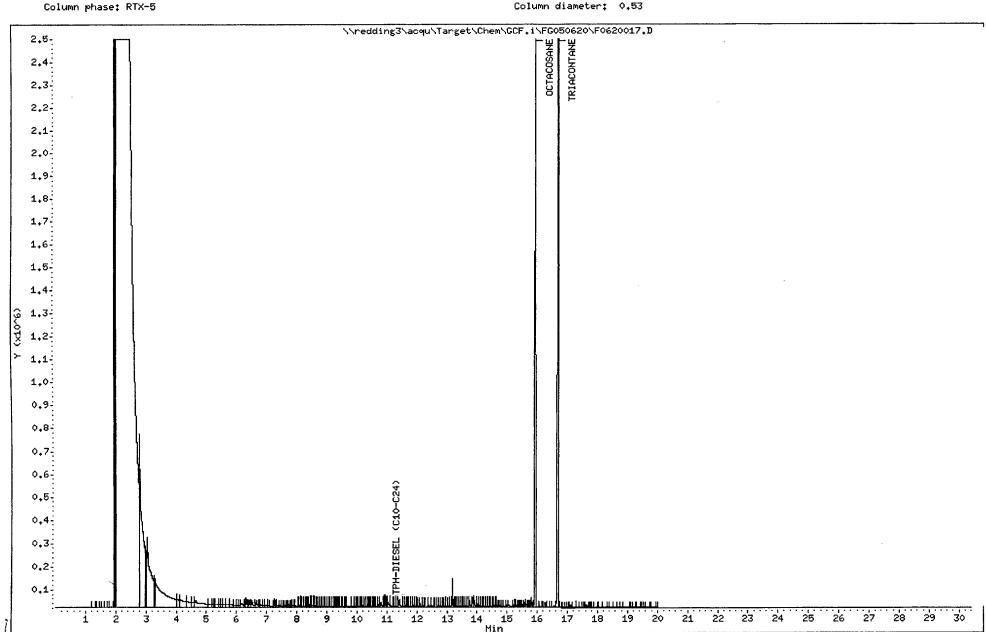
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620017.D

Date : 21-JUN-2005 03:55 Client ID: P13SCSB0405F Sample Info: DF075008

Instrument: GCF.i

Operator:



LOW

CLIENT ID.

P13SCSB0410F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075009

Matrix: SOIL Level:

Lab File ID:

F0620018

Sample Wt/Vol: 49.9 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 21

Date Analyzed:

06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

Units: mg/Kg

MDL

RL

RESULT

COMPOUND

PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_

0.80

13

13

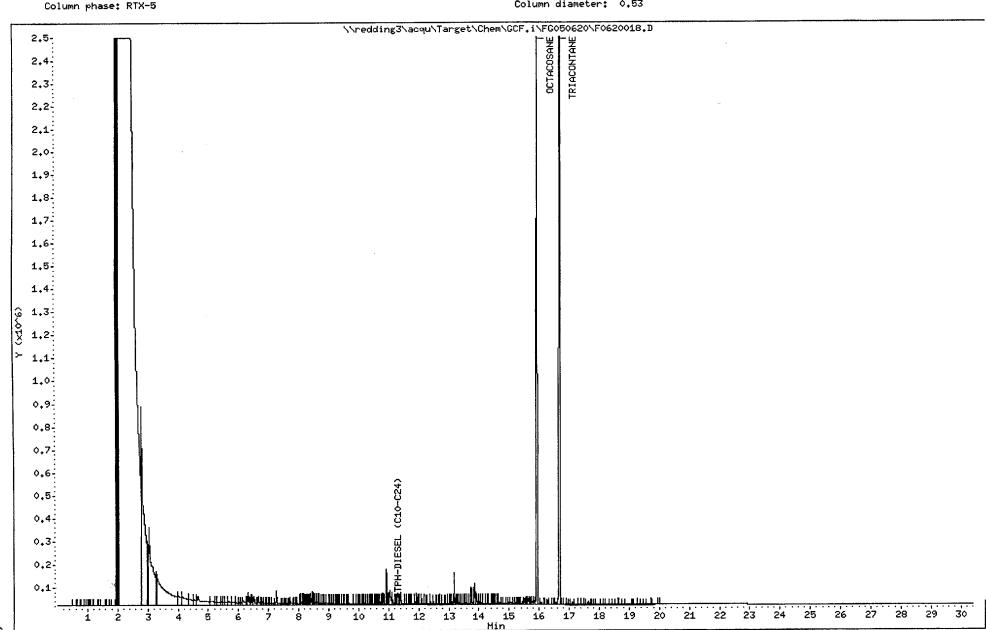
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620018.D

Date: 21-JUN-2005 04:34 Client ID: P13SCSB0410F Sample Info: DF075009

Instrument: GCF.i

Operator:



CLIENT ID.

P13SCSB0400R

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075010

Matrix:

WATER

Level: LOW Lab File ID:

G0621007

Sample Wt/Vol: 1.020 L

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/09/05

Date Analyzed: 06/21/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

Units: mg/L  $\mathtt{MDL}$ RLRESULT CAS NO. COMPOUND Q 0.018 0.10 U PHCC10C24---TPH-DIESEL (C10-C24) 0.10

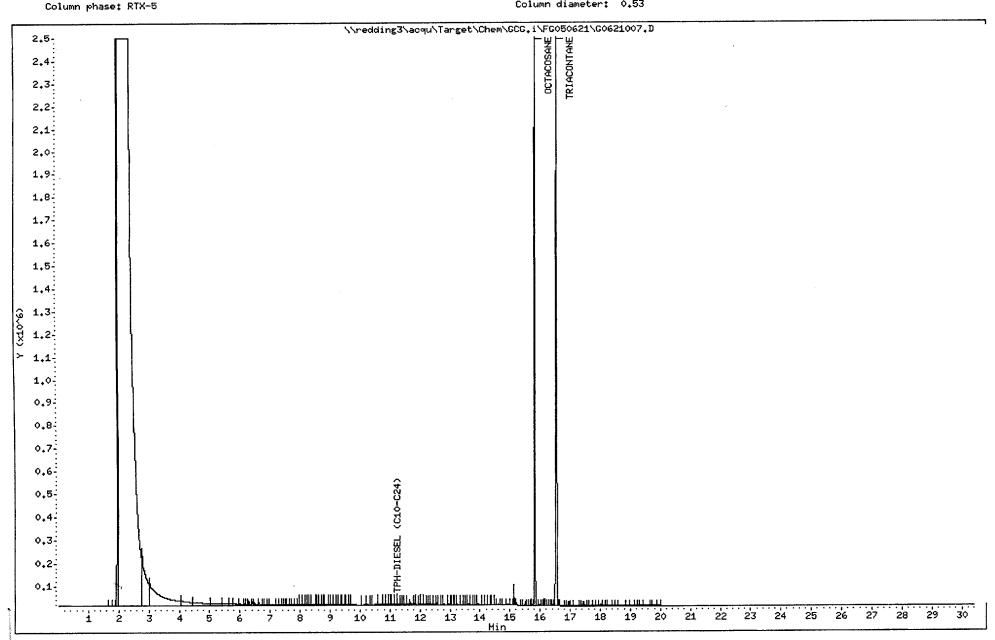
FORM I SV-1

Data File: \\redding3\acqu\Target\Che '000 '' F00F000' 0000' 000

Date : 21-JUN-2005 22:09 Client ID: P13SCSB0400R Sample Info: DF075010 Purge Volume: 1.0

Instrument: GCG.i

Operator:



CLIENT ID.

P13SCSB0601F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab Sample ID:

DF075011

Matrix: SOIL Level:

LOW

Lab File ID:

F0620019

Sample Wt/Vol: 50.0 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 26

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 2.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT

PHCC10C24---TPH-DIESEL (C10-C24)

1.7

27

93

FORM I SV-1

Data File: \\redding3\acqu\Target\Ch

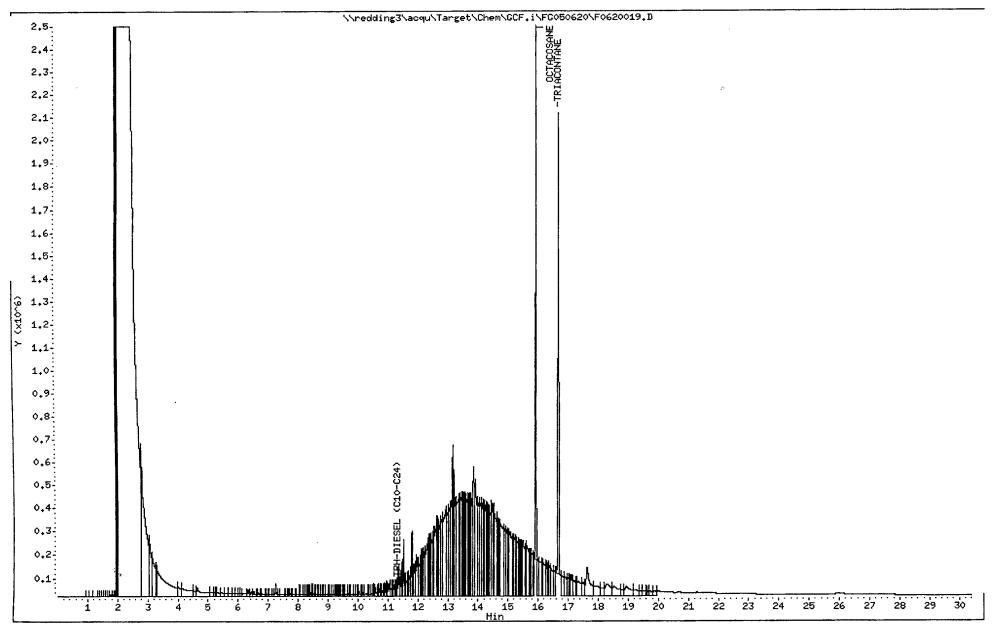
Date : 21-JUN-2005 05:14 Client ID: P13SCSB0601F Sample Info: DF075011

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



CLIENT ID.

P13SCSB0605F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075012

Matrix: SOIL

Lab File ID:

Sample Wt/Vol: 50.4 G

LOW

F0620021

Date Collected: 06/03/05

Extract Vol:

Level:

Date Extracted: 06/08/05

% Moisture: not dec. 22

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL	(C10-C24)	0.81	13	5.0	J

FORM I SV-1

Data File: \\redding3\acqu\Target\Ch

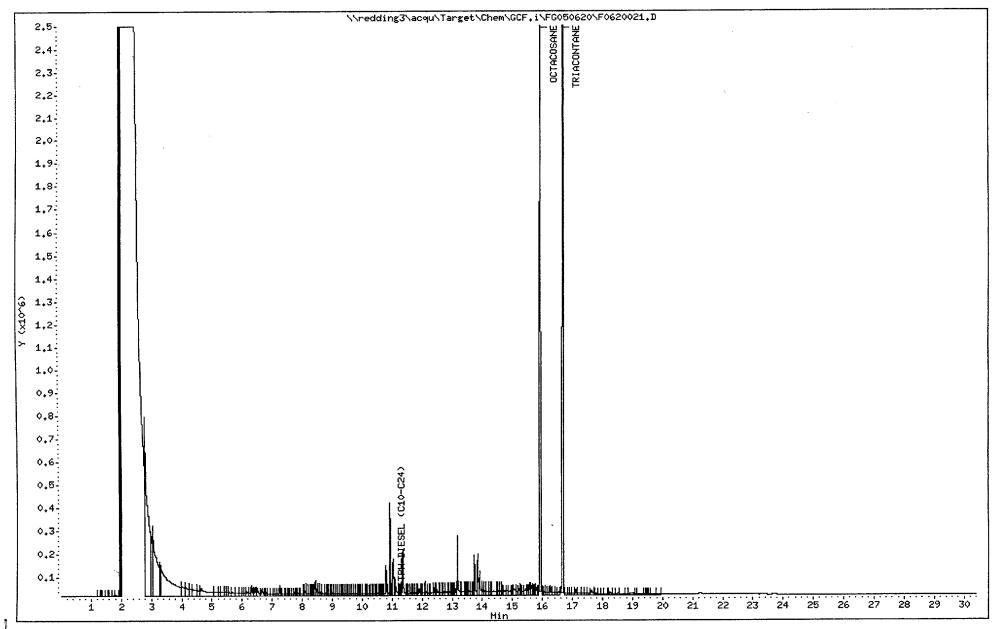
Date : 21-JUN-2005 06:33 Client ID: P13SCSB0605F Sample Info: DF075012

Instrument: GCF,i

Operator:

Column diameter: 0.53

Column phase: RTX-5



CLIENT ID.

P13SCSB0610F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075013

Matrix: SOIL Level:

LOW

Lab File ID:

F0620022

Sample Wt/Vol: 50.2 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 22

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT Q

PHCC10C24---TPH-DIESEL (C10-C24)

0.81

13

5.9

J

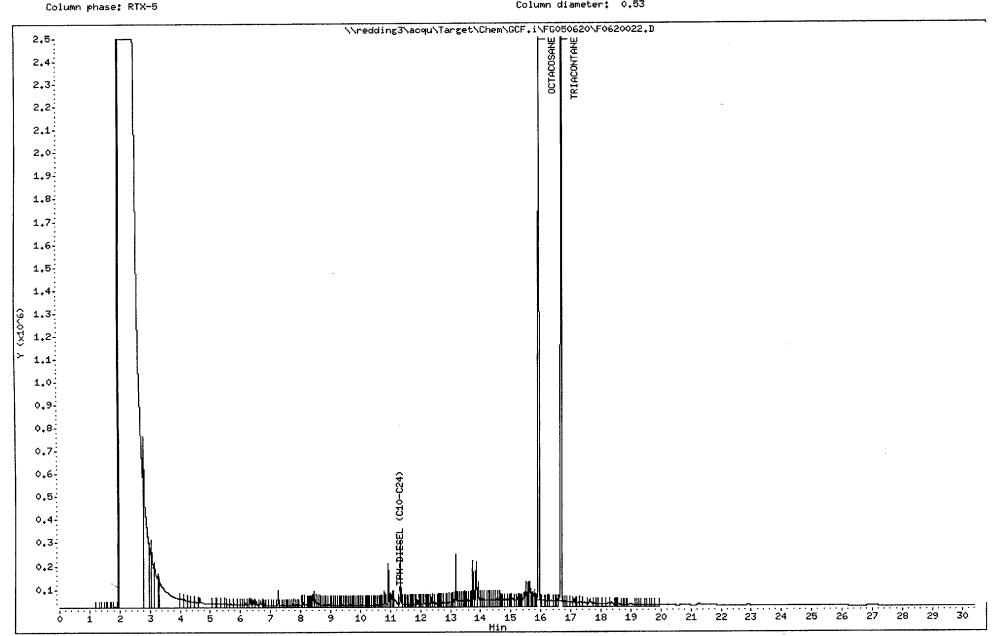
FORM I SV-1

Data File: \\redding3\acqu\Target\Ch

Date : 21-JUN-2005 07:13 Client ID: P13SCSB0610F Sample Info: DF075013

Instrument: GCF.i

Operator:



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0501F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075014

Matrix:

SOIL

Level: LOW Lab File ID:

F0620023

Sample Wt/Vol: 50.6 G

Date Collected:

06/03/05

Extract Vol:

Date Extracted: 06/08/05

1 ML

% Moisture: not dec. 20

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND 0.79 PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_ 12 6.0 J

FORM I SV-1

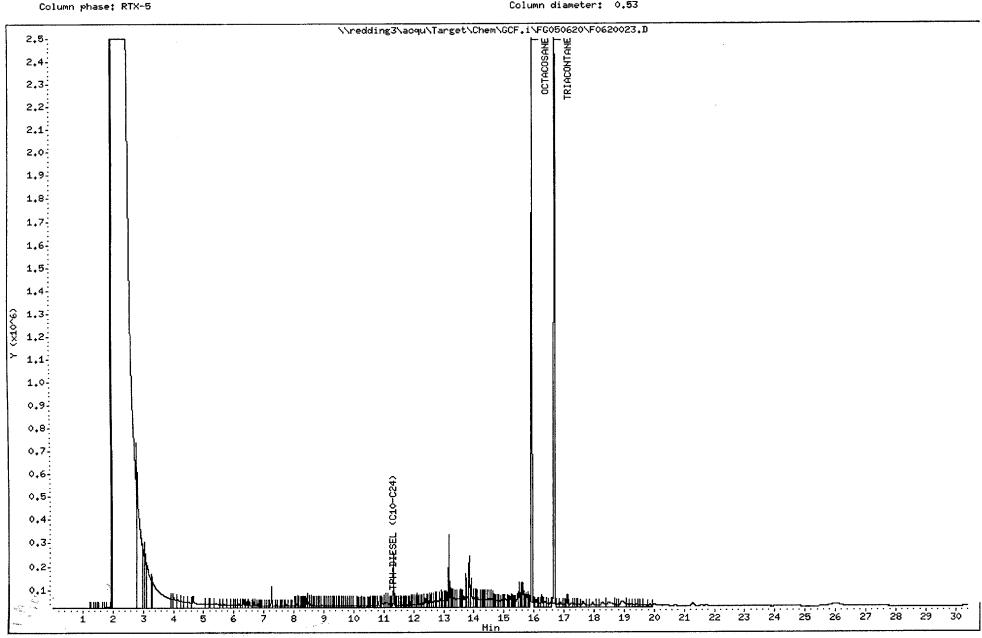
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620023.D

Date : 21-JUN-2005 07:52 Client ID: P13SCSB0501F Sample Info: DF075014

ş. .

Instrument: GCF.i

Operator:



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

P13SCSB0505F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab Sample ID:

DF075015

Matrix: SOIL Level:

Sample Wt/Vol: 50.9 G

Lab File ID:

F0620024

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

1 ML

% Moisture: not dec. 33

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg RESULT CAS NO. COMPOUND MDLRLQ 0.94 15 U PHCC10C24---TPH-DIESEL (C10-C24) 15

FORM I SV-1

Page 3

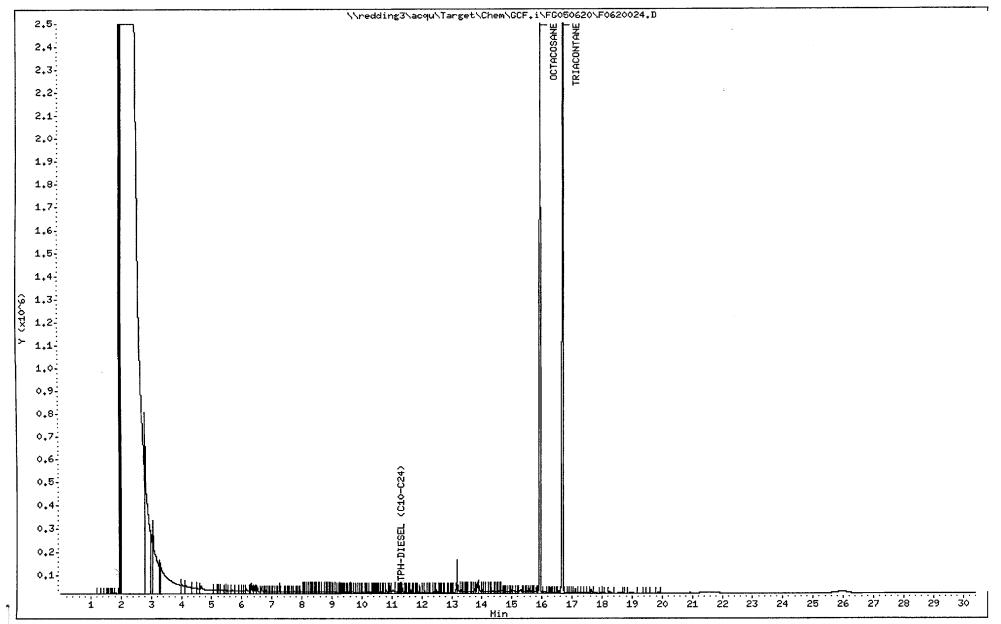
Data File: \\redding3\acqu\Target\Ch

Date : 21-JUN-2005 08:32 Client ID: P13SCSB0505F Sample Info: DF075015

Instrument: GCF.i

Operator:





SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0510F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075016

Matrix:

SOIL

Level: LOW Lab File ID:

F0620025

Sample Wt/Vol: 50.3 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 39

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. Units: mg/Kg COMPOUND MDL RLRESULT U PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_ 1.0 16 16

FORM I SV-1

Data File: \\redding3\acqu\Target\C\

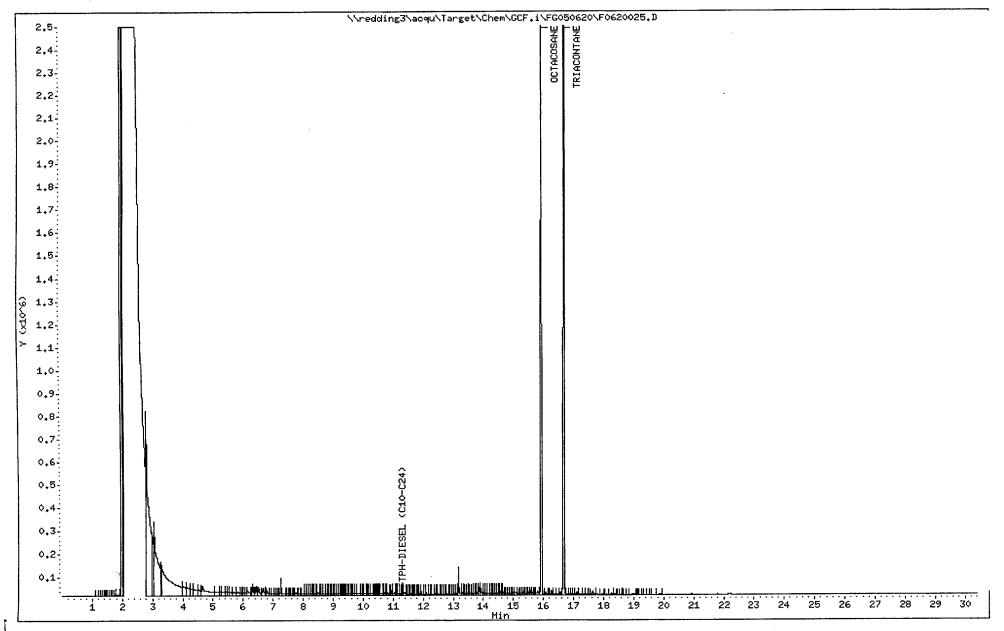
Date : 21-JUN-2005 09:12 Client ID: P13SCSB0510F Sample Info: DF075016

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0100F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab Sample ID:

DF075017

Matrix: SOIL

LOW

F0620026

Sample Wt/Vol: 49.7 G

Level:

Lab File ID:

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

% Moisture: not dec. 18

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. COMPOUND Units: mg/Kg  $\mathtt{MDL}$ RLRESULT Q PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_ 0.77 12 12 U

FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620026.D

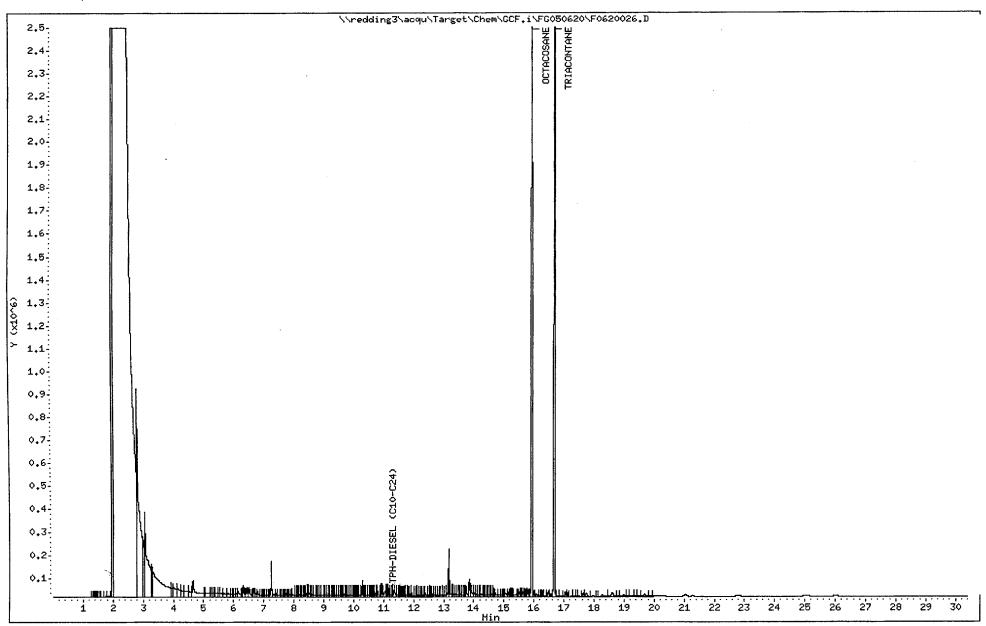
Date : 21-JUN-2005 09:52 Client ID: P13SCSB0100F Sample Info: DF075017

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0105F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab Sample ID:

DF075018

Matrix: SOIL

Level: LOW Lab File ID:

F0620027

Sample Wt/Vol: 49.8 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/08/05

% Moisture: not dec. 21

1 ML

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.80	13	31	

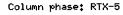
FORM I SV-1

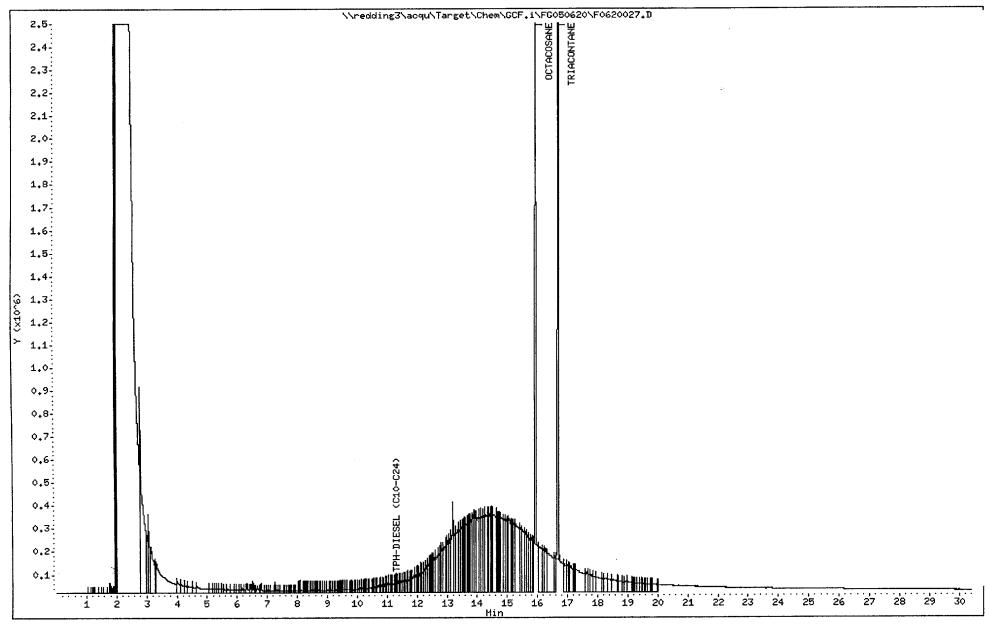
Data File: \\redding3\acqu\Target\Ch

Date : 21-JUN-2005 10:31 Client ID: P13SCSB0105F Sample Info: DF075018

Instrument: GCF.i

Operator:





CLIENT ID.

P13SCSB0110F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DF075019

Matrix: SOIL

Level: LOW Lab File ID:

F0620033

Sample Wt/Vol: 50.0 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/08/05

% Moisture: not dec. 20

Date Analyzed: 06/21/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24) 0.79 12 U 12

FORM I SV-1

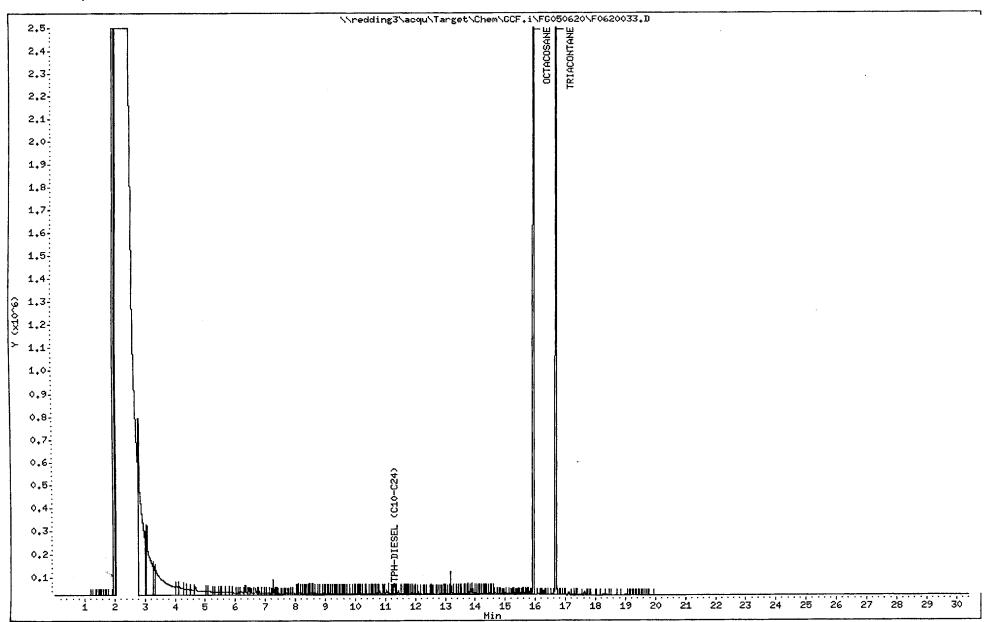
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050620\F0620033.D

Date : 21-JUN-2005 14:51 Client ID: P13SCSB0110F Sample Info: DF075019

Instrument: GCF.i

Operator:

Column phase: RTX-5



**QC** Summary

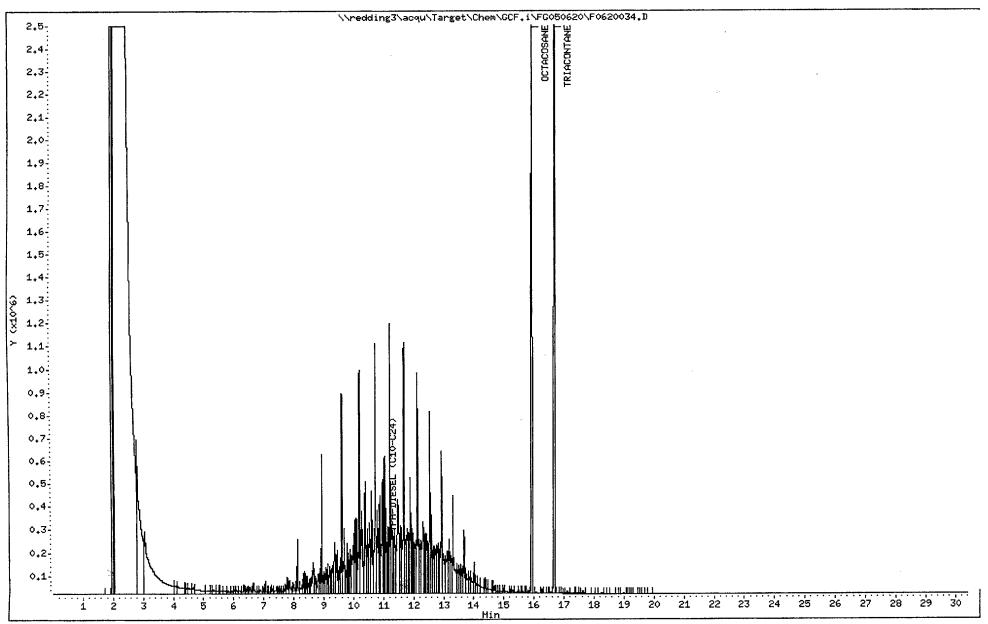
Data File: \\redding3\acqu\Target\Ch

Date: 21-JUN-2005 15:31 Client ID: P13SCSB0110FMS Sample Info: DF075019MS

Instrument: GCF.i

Operator:





Page 3

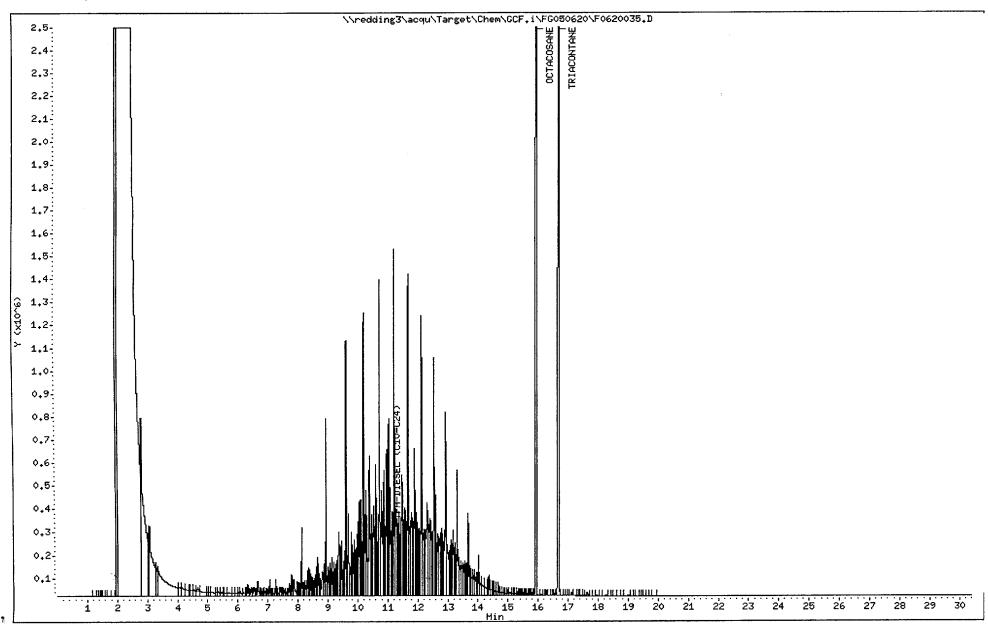
Data File: \\redding3\acqu\Target\Ch

Date : 21-JUN-2005 16:10 Client ID: P13SCSB0110FMSD Sample Info: DF075019MSD

Column phase: RTX-5

Instrument: GCF.i

Operator:



Data File: \\redding3\acqu\Target\Cl

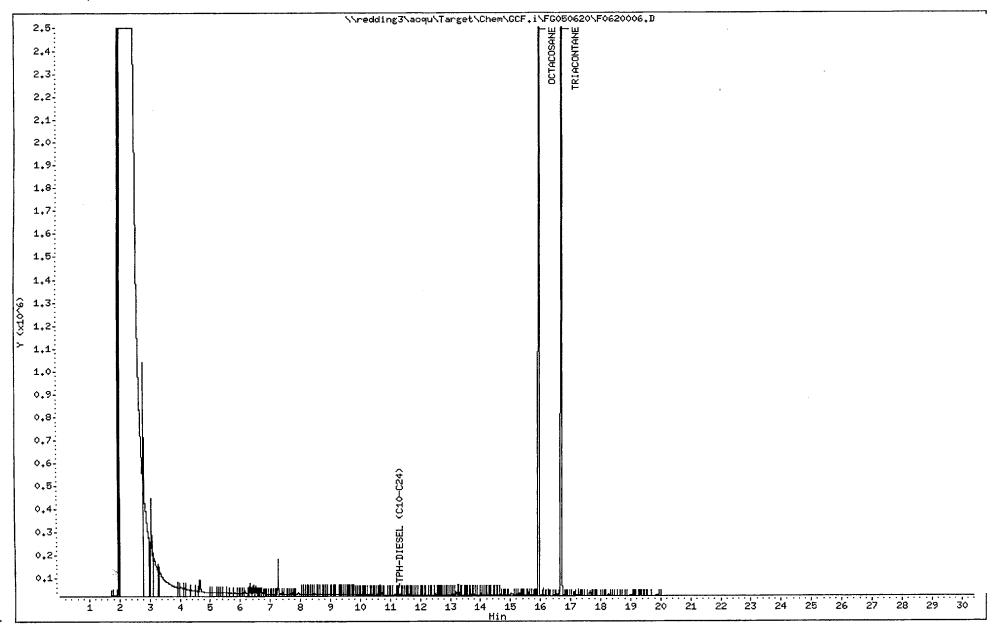
Date : 20-JUN-2005 20:40 Client ID: DSB10608

Sample Info: DSB10608

Column phase: RTX-5

Instrument: GCF.i

Operator:



Data File: \\redding3\acqu\Target\Chem\GCF,i\FG050620\F0620007.D

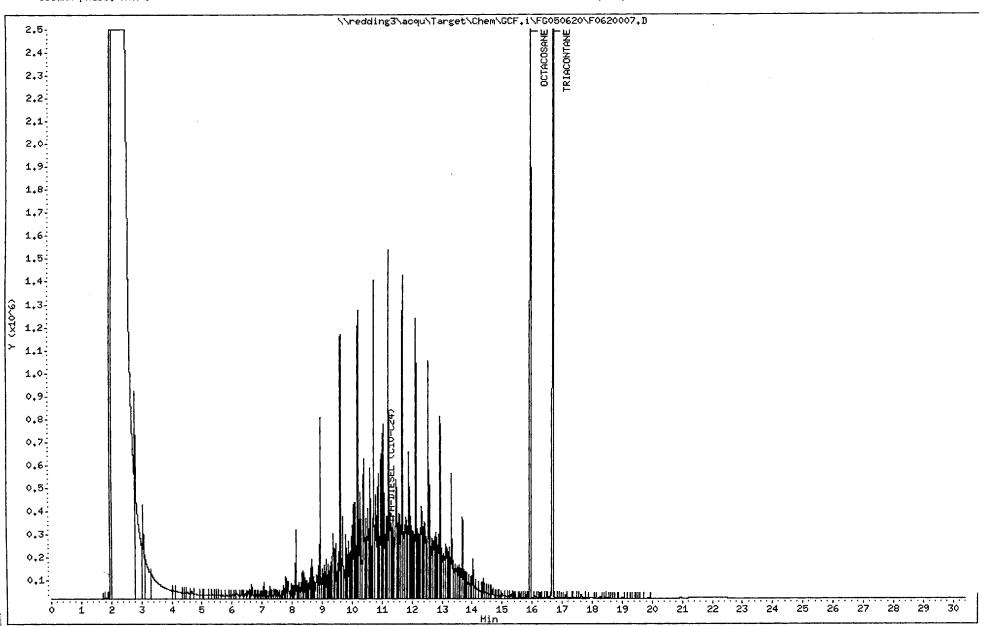
Date : 20-JUN-2005 21:19 Client ID: DSB10608LCS Sample Info: DSB10608LCS

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



Page 3

Data File: \\redding3\acqu\Target\Ch

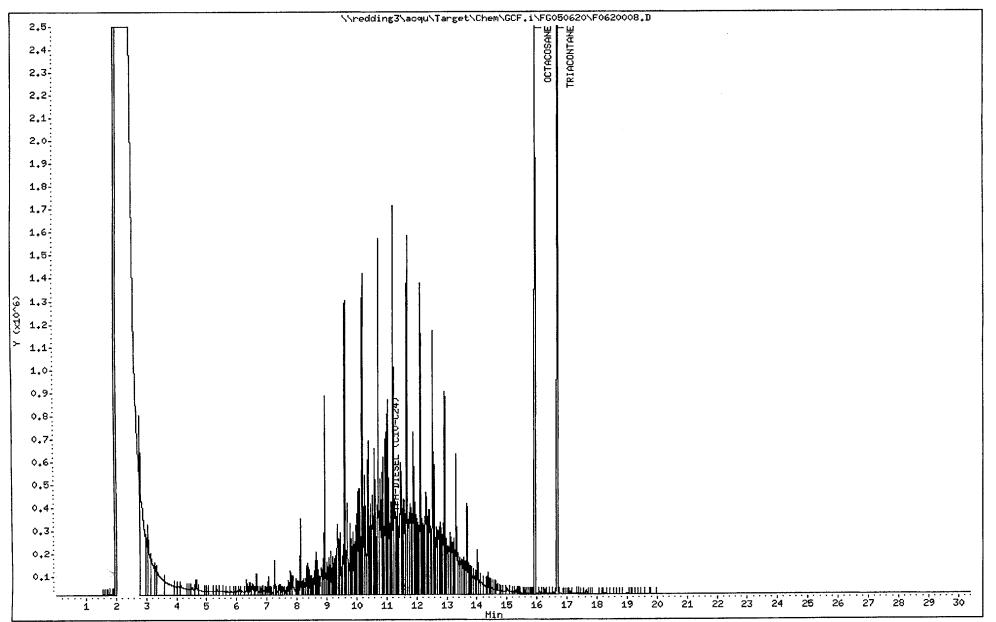
Date : 20-JUN-2005 21:59 Client ID: DSB10608LCSD Sample Info: DSB10608LCSD

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



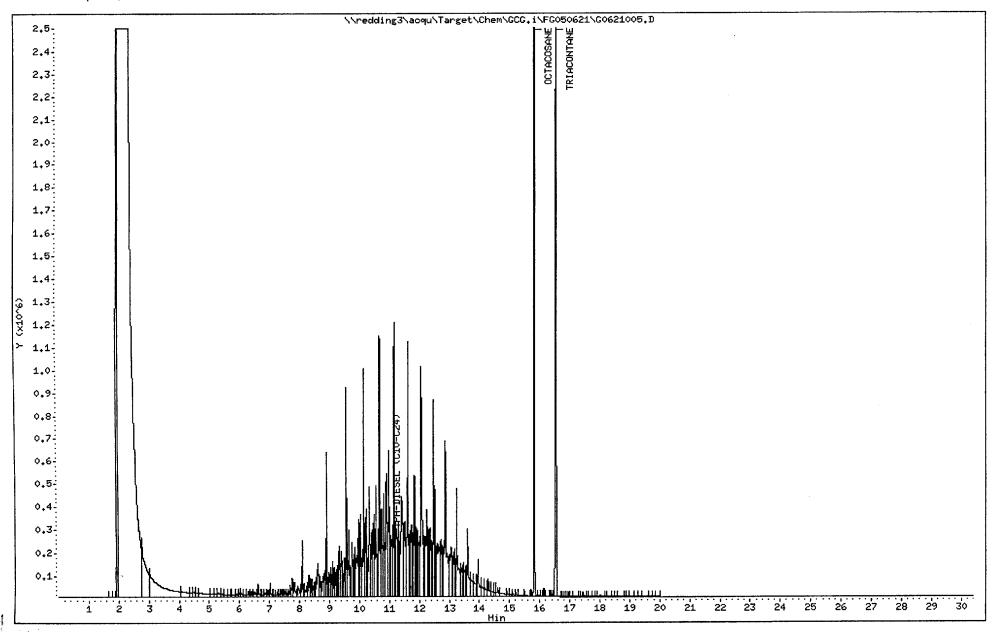
Page 3

Data File: \\redding3\acqu\Target\Che

Date : 21-JUN-2005 20:50 Client ID: DWB20609LCS Sample Info: DWB20609LCS

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCG.i

Operator:

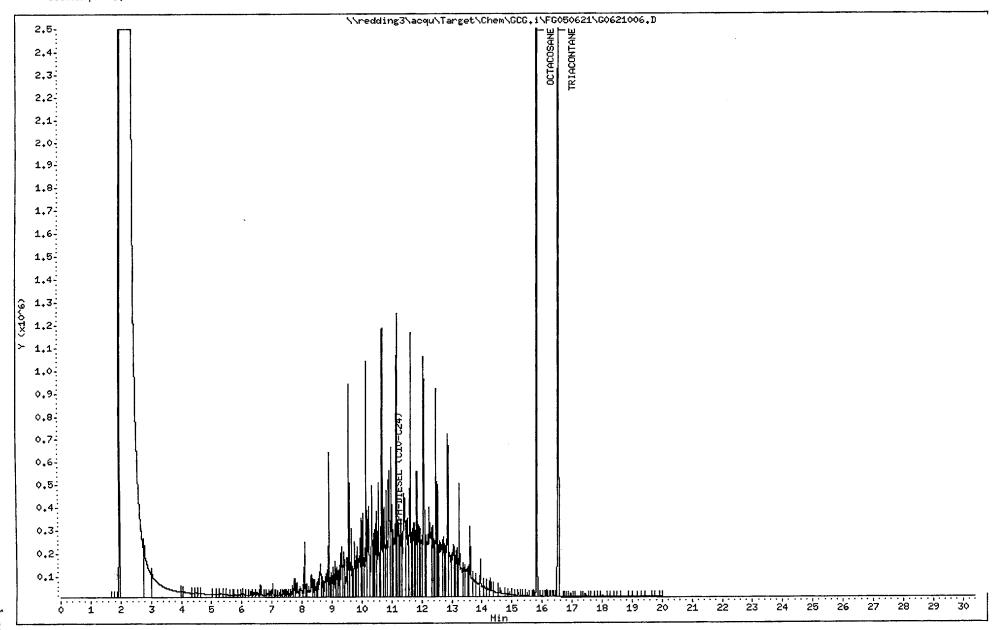


Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050621\G0621006.D

Date : 21-JUN-2005 21:30 Client ID: DWB20609LCSD Sample Info: DWB20609LCSD

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCG.i

Operator:



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

DSB10608

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Lab Sample ID:

DSB10608

Matrix: SOIL Level:

Lab File ID:

F0620006

Sample Wt/Vol: 49.7 G

Date Collected:

Extract Vol:

1 ML

Date Extracted: 06/08/05

Date Analyzed: 06/20/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. Units: mg/Kg RLRESULT COMPOUND MDL Q PHCC10C24---TPH-DIESEL (C10-C24) 0.63 10 U 10

FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

DWB20609

Case No.: DF075 SDG No.: DF075 Lab Sample ID: DWB20609

Matrix: WATER Level: LOW Lab File ID: G0621004

Sample Wt/Vol: 1.000 L Date Collected:

Extract Vol: 1 ML Date Extracted: 06/09/05

Date Analyzed: 06/21/05

Extraction Type: SEP FUNNEL Dilution Factor: 1.0

 CAS NO.
 COMPOUND
 Units: mg/L
 MDL
 RL
 RESULT
 Q

 PHCC10C24---TPH-DIESEL (C10-C24)
 0.018
 0.10
 0.10
 U

## 2C SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Level: LOW

	LAB ID	CLIENT ID.	S1 (OCT)#	S2 (TRI)#	S3	TOT
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 22 23 24 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	DSB10608 DSB10608LCS DF075001 DF075002 DF075003 DF075004 DF075005 DF075006 DF075007 DF075008 DF075009 DF075011 DF075012 DF075013 DF075014	CLIENT ID.  ===================================	(OCT)# ====== 105 88 95 98 81 93 89 99 78 83 86 92 89 91 78 95 89 104 87 108 94 129*	(TRI)# ====== 103 87 94 97 80 92 88 99 79 80 82 92 89 91 79 95 89 103 87 110* 94 130*		OUT === 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

QC LIMITS (56-110) (52-107)

D Surrogates diluted out

page 1 of 1

FORM II SV-1

SW846

S1 (OCT) = OCTACOSANE S2 (TRI) = TRIACONTANE

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits

## 2C WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

LAB ID CLIENT ID. (OCT) # (TRI) # OUT  ===================================							<del></del> 1
Section   Sect		· ·				S3	
Section   Sect		LAB ID	CLIENT ID.	(OCT)#	(TRI)#		OUT
02         DWB20609LCS         DWB20609LCSD         79         77         0           03         DWB20609LCSD         B0         79         0           04         DF075010         P13SCSB0400R         66         68         0           05         06         07         08         09         0<		=========		=====	=====	=====	===
02         DWB20609LCS         DWB20609LCSD         79         77         0           03         DWB20609LCSD         B0         79         0           04         DF075010         P13SCSB0400R         66         68         0           05         06         07         08         09         0<	Λ1	DMB20609	DWB20609	64	68		οl
03         DWB20609LCSD         DWB20609LCSD         80         79         0           04         DF075010         P13SCSB0400R         66         68         0           05         06         07         08         09         0						<del></del>	
04 DF075010 P13SCSB0400R 66 68 0 05 06							
05       —							1
06	04	DF075010	PI3SCSB0400R	66	68		U
07     08       09     09       10     09       11     09       12     09       13     09       14     09       15     09       16     09       17     09	05						
07     08       09     09       10     09       11     09       12     09       13     09       14     09       15     09       16     09       17     09	06						
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QC LIMITS S1 (OCT) = OCTACOSANE (58-111)S2 (TRI) = TRIACONTANE (54-109)

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FORM II SV-1

SW846

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits
D Surrogates diluted out

## 3C SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Matrix Spike - Sample No.: P13SCSB0110F Level: LOW

COMPOUND	SPIKE	SAMPLE	MS	MS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	62.588	0.00000	45.443	73	65-135

	SPIKE ADDED	MSD CONCENTRATION		0اه	~	IMITS
COMPOUND	(mg/Kg)	(mg/Kg)	REC #	RPD#	RPD	REC.
TPH-DIESEL (C10-C24)	63.004	58.664	93	25	30	65-135

# Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

RPD: 0 out of 1 outside limits Spike Recovery: 0 out of 2 outside limits

### 3D SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

LCS -

Sample No.: DSB10608

Level: LOW

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	50.181	N/A	45.719	91	65-135

RPD: 0 out of 0 outside limits Spike Recovery: 0 out of 1 outside limits

SW846

## 3C WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

LCS - Sample No.: DWB20609

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/L)	(mg/L)	(mg/L)	REC #	REC.
TPH-DIESEL (C10-C24)	2.5000	N/A	1.9675	79	65-135

COMPOUND	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC #	% RPD #	QC L: RPD	IMITS REC.
TPH-DIESEL (C10-C24)	2.5000	2.0394	82	4	20	65-135

# Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

#### 4B SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DSB10608

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab File ID: F0620006

Lab Sample ID: DSB10608

Date Extracted: 06/08/05

Extraction Type: SONICATION

Date Analyzed: 06/20/05

Time Analyzed: 2040

Matrix:

SOIL

Level: (low/med)

LOW

Instrument ID:

GCF

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CT TUNTE TO	LAB	LAB	DATE
	CLIENT ID.	SAMPLE ID	FILE ID	ANALYZED
01	DCD1 0C001 CC	DCD1 OCOOT CC	E0620007	06/20/05
01	DSB10608LCS P13SCSB0201F	DSB10608LCS DF075001	F0620007 F0620009	06/20/05 06/20/05
02				
03	P13SCSB0205F	DF075002 DF075003	F0620010	06/20/05 06/20/05
04	P13SCSB0210F P13SCSB0301F	DF075003 DF075004	F0620011 F0620012	
05				06/21/05 06/21/05
06	P13SCSB0305F P13SCSB0310F	DF075005 DF075006	F0620013 F0620014	06/21/05
07				06/21/05
80	P13SCSB0400F	DF075007	F0620015	06/21/05
09	P13SCSB0405F	DF075008	F0620017	
10	P13SCSB0410F	DF075009	F0620018	06/21/05
11	P13SCSB0601F	DF075011	F0620019	06/21/05
12	P13SCSB0605F	DF075012	F0620021	06/21/05
13		DF075013	F0620022	06/21/05
14	P13SCSB0501F	DF075014	F0620023	06/21/05
15		DF075015	F0620024	06/21/05
16	P13SCSB0510F	DF075016	F0620025	06/21/05
17	P13SCSB0100F	DF075017	F0620026	06/21/05
18		DF075018	F0620027	06/21/05
19	P13SCSB0110F	DF075019	F0620033	06/21/05
20	P13SCSB0110FMS	DF075019MS	F0620034	06/21/05
21	P13SCSB0110FMSD	DF075019MSD	F0620035	06/21/05
22				
23	l			

## SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DWB20609

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Lab File ID: G0621004

Lab Sample ID: DWB20609

Date Extracted: 06/09/05

Extraction Type: SEP FUNNEL

Date Analyzed:

06/21/05

Time Analyzed:

2010

Matrix:

WATER

Level: (low/med)

LOW

Instrument ID:

GCG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18	DWB20609LCS DWB20609LCSD P13SCSB0400R			
21 22 23				

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FORM IV SV

SW846

**Standards Data** 

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Instrument ID: GCF

ICAL Date(s): 06/15/05 06/16/05

Analyte Concentration:

	1=F061500 5=F06150			F0615008. F0615011.	ı
COMPOUND ====================================	RRF0.1 ====== 0.100	RRF0.5 ====== 0.500	RRF1 ====== 1.000	RRF2.5 ====== 2.500	RRF4 ====== 4.000
OCTACOSANETRIACONTANE	0.100	0.150 0.150	0.250	0.300	0.350 0.350

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075

SDG No.: DF075

Instrument ID: GCF

ICAL Date(s): 06/15/05 06/16/05

	l=F06150 5=F06150		RRF( RRF4	0.5=F061 4 =F061	L5008.D L5011.D		
COMPOUND ====================================	RRF0.1 ===== 8302	RRF0.5 ===== 6481	RRF1 ===== 7116	RRF2.5 ===== 6537	RRF4 ===== 6504	RRF ===== 6988	%RSD ===== 11.2
OCTACOSANE TRIACONTANE	6286   6191 	6279 6142	7324 7176	7120	7187	6839 6746	7.5 7.9

RF's divided by 100000

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Instrument ID: GCG

ICAL Date(s): 06/17/05

Analyte Concentration:

<del></del>	RRF0.1=G0617005.D RRF2.5=G0617008.D			RRF0.5=G0617006.D RRF4 =G0617012.D			
COMPOUND ====================================	RRF0.1 ======= 0.100	RRF0.5 ====== 0.500	RRF1 ====== 1.000	RRF2.5 ====== 2.500	RRF4 ====== 4.000		
OCTACOSANE TRIACONTANE	0.100	0.150	0.250	0.300	0.350 0.350		

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

Instrument ID: GCG

ICAL Date(s): 06/17/05

	RRF0.1=G0617005.D RRF2.5=G0617008.D		RRF0.5=G0617006.D RRF4 =G0617012.D					
COMPOUND ====================================	====	RRF0.1 ===== 7268	RRF0.5 ===== 6453	RRF1 ===== 7159	RRF2.5 ===== 7052		RRF ===== 6957	%RSD ===== 4.6
OCTACOSANE TRIACONTANE		5767 5618	5764 5949	6790 6827	7129 6644	7712 7182	6632 6444	12.9 10.0

RF's divided by 100000

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## 7B SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF075 SDG No.: DF075

0318

ICAL Date/Time (1st pt): 06/15/05

2240

ICAL Date/Time (Last pt): 06/16/05

0119

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6988	7016	AVG	0.4	15.0
OCTACOSANE TRIACONTANE	6839 6746	7627 7261	AVG AVG		15.0 15.0

RF's divided by 100000

# 7B SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF075

SDG No.: DF075

Lab File ID: F0620003

CCV Date/Time:

06/20/05

1840

ICAL Date/Time (1st pt): 06/15/05

2240

ICAL Date/Time (Last pt): 06/16/05

0119

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6988	6891	AVG	-1.4	15.0
OCTACOSANE TRIACONTANE	6839 6746	7158 7148	AVG AVG		15.0 15.0

RF's divided by 100000

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF075

SDG No.: DF075

Lab File ID: F0620016

CCV Date/Time:

06/21/05

0315

ICAL Date/Time (1st pt): 06/15/05

2240

ICAL Date/Time (Last pt): 06/16/05

0119

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6988	7129	AVG	2.0	15.0
OCTACOSANE TRIACONTANE	6839 6746	7385 7037	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF075

SDG No.: DF075

Lab File ID: F0620029

CCV Date/Time:

06/21/05

1151

ICAL Date/Time (1st pt): 06/15/05

2240

ICAL Date/Time (Last pt): 06/16/05

0119

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6988	6713	AVG	-3.9	15.0
OCTACOSANE TRIACONTANE	6839 6746	7299 7186	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF075

SDG No.: DF075

Lab File ID: F0620037

CCV Date/Time: 06/21/05

1730

ICAL Date/Time (1st pt): 06/15/05

2240

ICAL Date/Time (Last pt): 06/16/05

0119

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6988	7032	AVG	0.6	15.0
OCTACOSANETRIACONTANE	6839 6746	6533 6212	AVG AVG	-4.5 -7.9	15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF075

SDG No.: DF075

Lab File ID: G0617015

CCV Date/Time:

06/17/05

2026

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05 1827

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957	6747	AVG	-3.0	15.0
OCTACOSANE TRIACONTANE	6632 6444	6793 6938	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF075

SDG No.: DF075

Lab File ID: G0621003

CCV Date/Time:

06/21/05

1931

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957	7224	AVG	3.8	15.0
OCTACOSANE_ TRIACONTANE_	6632 6444	7233 6563	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF075

SDG No.: DF075

Lab File ID: G0621014

CCV Date/Time:

06/22/05

0247

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D	
TPH-DIESEL (C10-C24)	6957	6996	AVG	0.6	15.0	
OCTACOSANE TRIACONTANE	6632 6444	5599 5728	AVG AVG	-15.6 -11.1	1	<

### 8D SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 06/15/05 06/16/05

Instrument ID: GCF

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
	==========		========	=======
01	DSTD1	DSTD1	06/15/05	2240
02	DSTD2	DSTD2	06/15/05	2320
03	DSTD3	DSTD3	06/16/05	0000
04	DSTD4	DSTD4	06/16/05	0039
05	DSTD5	DSTD5	06/16/05	0119
06	QCALTSTD	QCALTSTD	06/16/05	0318
07	DSTD3	DSTD 1.0 MG/	06/20/05	1840
80	DSB10608	DSB10608	06/20/05	2040
09	DSB10608LCS	DSB10608LCS	06/20/05	2119
10	P13SCSB0201F	DF075001	06/20/05	2238
11	P13SCSB0205F	DF075002	06/20/05	2318
12	P13SCSB0210F	DF075003	06/20/05	2357
13	P13SCSB0301F	DF075004	06/21/05	0037
14	P13SCSB0305F	DF075005	06/21/05	0116
15		DF075006	06/21/05	0156
	P13SCSB0400F	DF075007	06/21/05	0236
17	DSTD3	DSTD 1.0 MG/	06/21/05	0315
18	P13SCSB0405F	DF075008	06/21/05	0355
19	P13SCSB0410F	DF075009	06/21/05	0434
20	P13SCSB0601F	DF075011	06/21/05	0514
	P13SCSB0605F	DF075012	06/21/05	0633
	P13SCSB0610F	DF075013	06/21/05	0713
	P13SCSB0501F P13SCSB0505F	DF075014	06/21/05	0752 0832
24 25	P13SCSB0505F P13SCSB0510F	DF075015 DF075016	06/21/05 06/21/05	0832
	P13SCSB0510F P13SCSB0100F	DF075016 DF075017	06/21/05	0912
27	P13SCSB0100F P13SCSB0105F	DF075017	06/21/05	1031
28	DSTD4	DSTD 2.5 MG/	06/21/05	1151
29	P13SCSB0110F	DF075019	06/21/05	1451
30	P13SCSB0110F P13SCSB0110FMS	DF075019 DF075019MS	06/21/05	1531
31	P13SCSB0110FMSD	DF075019MSD	06/21/05	1610
	DSTD3	DSTD 1.0 MG/		1730
2 ب	100100	12012 1.0 110/	1 00/21/03	1 1/50

### 8D SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF075 SDG No.: DF075

GC Column: RTX-5

ID: 0.53 (mm) ICAL Date(s): 06/17/05 06/17/05

Instrument ID: GCG

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
Λ1		DCID1	06/17/05	1350
01	DSTD 0.1 DSTD 0.5	DSTD1 DSTD2	06/17/05	1430
03	DSTD 0.3	DSTD3	06/17/05	1509
04	DSTD 2.5	DSTD4	06/17/05	1549
05	DSTD 4.0	DSTD5	06/17/05	1827
06		QCALTSTD	06/17/05	2026
07	DSTD 2.5 MG/ML	DSTD4	06/21/05	1931
08 09	DWB20609 DWB20609LCS	DWB20609 DWB20609LCS	06/21/05 06/21/05	2010 2050
10	DWB20609LCSD	DWB20609LCSD	06/21/05	2130
11	P13SCSB0400R	DF075010	06/21/05	2209
12	DSTD 1.0 MG/ML	DSTD3	06/22/05	0247
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# **AMENDMENT REPORT**

Client: MACTEC INC.

Project: MACTEC/CAMP PARKS

Date: 8/9/2005

Batch: DF076

Tier: 3

Dept: CL SERV

E-Data: NOT REQUIRED

Initiated By: Douglas Burnett

Completed By: Douglas Burnett

Approved By: Douglas Burnett

REASON: Client Request

1. Amend case narrative to include comment about soil samples received in plastic sleeves rather than glass or metal

2. Amend case narrative to include comment on why Silica Gel cleanup was not performed.

3. Supply Chromatograms

### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

MACTEC

Service Request No.:

DF076

Project:

Camp Parks

Date Received:

6/4/05

Sample Matrix:

Soil/Water

#### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

### Sample Receipt

Twenty soil samples were received for analysis at Columbia Analytical Services on 6/4/05. The following discrepancy was noted upon initial sample inspection:

- On COC #1110, the matrix of the samples was either unmarked or marked as water. The samples are soil matrix.
- Soil samples were received in plastic sleeves rather than glass or metal. Per instruction from the project manager on 6/6/05, proceed with analysis.

The samples were received in good condition and otherwise consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

### Diesel Range Organics by EPA Method 8015B

### Continuing Calibration Verification Exceptions:

The upper control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G0630013 (6/30/05 18:40): Octacosane and Triacontane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected. No further corrective action was required.

### **Surrogate Exceptions:**

The control criteria were exceeded for the following surrogates in sample P13SCSB1100F due to matrix interferences: Octacosane and Triacontane. Due to the presence of non-target background components that prevented adequate resolution of the surrogate, accurate quantitation was not possible. No further corrective action was appropriate.

### Matrix Spike Recovery Exceptions:

The matrix spike recovery of Diesel Fuel for sample P13SCSB0810F was outside the control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supports this conclusion. Since the unspiked samples contain high analyte concentrations relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside the control criteria. The associated QA/QC results indicate the analysis was in control. No further corrective action was appropriate.

### **Elevated Method Reporting Limits:**

Samples P13SCSB0900F, P13SCSB1000F, P13SCSB0800F, P13SCSB0802F, P13SCSB0805F, P13SCSB0810F, P13SCSB0810FMS, and P13SCSB0810FMSD required dilution due to the presence of elevated levels of target and non-target analytes. The reporting limits are adjusted to reflect the dilution.

### General Notes and Discussion:

Silica gel cleanup was not performed during preparation of these samples as requested in the QAPP. Samples were received into the laboratory on 6/4/05, prepared on 6/10/05; QAPP was received by CAS on 6/14/05.

Samples P13SCSB0900F, P13SCSB1000F, P13SCSB1100F, P13SCSB1102F, P13SCSB0805F contained an unknown hydrocarbon pattern within the Diesel Fuel range, but did not resemble Diesel Fuel. The samples were quantitated and reported as Diesel Fuel.

Approved by: Date: 8-5-05



David Browne
MACTEC Inc.
5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954

Columbia Analytical Services Report Camp Parks Dublin DF050076/DF076 37868

July 12, 2005

Submitted by:

Douglas Burnett

Project Manager/Client Services

The test results provided in this data package meet the requirements of the NELAC Standards unless noted in the case narrative report.

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### **Current CAS Redding Accreditation Programs**

### Federal and National Programs

- U.S Air Force, Air Force Center for Environmental Excellence (AFCEE)
   Approved laboratory for Wastewater and Hazardous Waste
- U.S. Army Corps of Engineers MRD, HTRW Mandatory Center of Expertise
   Validated for Wastewater and Hazardous Waste
- Department of the Navy, Naval Facilities Engineering Service Center (NFESC)
  Approved laboratory for Wastewater and Hazardous Waste

### State and Local Programs

• State of Arizona, Department of Health Services
Approved laboratory for Hazardous Waste

Lab ID# AZ0604

• State of Arkansas, Department of Environmental Quality

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# None

• State of California, Department of Health Services, National Environmental Laboratory Accreditation Program (NELAP)

Approved laboratory for Drinking Water, Wastewater and Hazardous Waste Lab ID# 01105CA

• Los Angeles County Sanitation District

Approved laboratory for Wastewater

Lab ID# 10243

State of Florida, Department of Health (NELAP)

Approved Environmental Testing Laboratory for Wastewater and Hazardous Waste Lab ID# E87203

State of Kansas, Department of Health and Environment (NELAP)

Approved laboratory for Hazardous Waste

Lab ID# E-10323

• State of Massachusetts, Department of Environmental Protection

Approved laboratory for Drinking Water, Wastewater

Lab ID# M-CA025

• State of Oklahoma, Department of Environmental Quality

Approved laboratory for General Water Quality/Sludge Testing Lab ID# 9952

State of Oregon, Department of Human Resources, Health Division (ORELAP)

Approved laboratory for Drinking Water, Wastewater, and Hazardous Waste Lab ID# CA200004

• State of Utah, Department of Health, Division of Laboratory Services (NELAP)

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# QUAL1

State of Washington, Department of Ecology, Environmental Laboratory Accreditation Program
 Approved laboratory for Wastewater and Hazardous Waste
 Lab ID# C037

• State of Wisconsin, Department of Ecology

Approved laboratory for Wastewater and Hazardous Waste Lab ID# 999767340

### Organic Data Qualifiers

- A -- This qualifier indicates that a TIC is a suspected aldol-condensation product
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.
- C The "C" flag indicates the presence of this compound has been confirmed by the GC/MS analysis.
- This qualifier is used for all the compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.
- E This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at the appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.
- I The qualifier indicates that the reporting limit to the "I" qualifier has been raised. It is used when the chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.
- J Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).
- N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for Tentatively Identified Compounds (TIC), where the identification is based on a mass spectral library research. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.
- P This qualifier is used for target analytes when there is a greater than 40% difference for detected concentrations between the two columns or detectors. The concentration value is reported on Form I and flagged with a "P".
- U Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

### Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analysis are defined below:

- DL Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. A digit to indicate multiple dilutions of the sample or extract may follow the "DL" suffix. The results of more than one diluted reanalysis may be reported.
- MS Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- MSD Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- R -- Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalysis of the sample at the same dilution.
- RE Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analysis of the same sample at the same dilution.

Sample ID Cross-reference Table

FS = Field	d Sampl	e; MS = Matr	ix Spike;	MSD = Ma	trix S	pike Duplicate;	NON =	Non-Sample	: Туре	(Internal	Admin)
DF076001		P13SCSB0900F									
DF076002		P13SCSB09021									
DF076003		P13SCSB09051									
DF076004		P13SCSB09101									
DF076005		P13SCSB1000I									
DF076006		P13SCSB1002I									
DF076007		P13SCSB1005									
DF076008		P13SCSB10101									
DF076009		P13SCSB1100I									
DF076010		P13SCSB1102									
DF076011		P13SCSB1200									
DF076012	FS	P13SCSB1205	F 06/04/05	06/03/05	11:30	Soil					
DF076013		P13SCSB1210									
DF076014		P13SCSB1300									
DF076015		P13SCSB1305									
DF076016	FS	P13SCSB1310	F 06/04/05	06/03/05	12:10	Soil					
DF076017		P13SCSB0800									
DF076018	FS	P13SCSB0802	F 06/04/05	06/03/05	13:25	Soil					
DF076019	FS	P13SCSB0805	F 06/04/05	06/03/05	13:27	Soil					
DF076020	FS	P13SCSB0810	F 06/04/05	06/03/05	13:35	Soil					

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

# CASE NARRATIVE

### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

MACTEC

Service Request No.:

DF076

Project:

Camp Parks

Date Received:

6/4/05

Sample Matrix:

Soil/Water

### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

### Sample Receipt

Twenty soil samples were received for analysis at Columbia Analytical Services on 6/4/05. The following discrepancy was noted upon initial sample inspection:

• On COC #1110, the matrix of the samples was either unmarked or marked as water. The samples are soil matrix.

The samples were received in good condition and otherwise consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

### **Diesel Range Organics by EPA Method 8015B**

### **Continuing Calibration Verification Exceptions:**

The upper control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G0630013 (6/30/05 18:40): Octacosane and Triacontane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected. No further corrective action was required.

### Surrogate Exceptions:

The control criteria were exceeded for the following surrogates in sample P13SCSB1100F due to matrix interferences: Octacosane and Triacontane. Due to the presence of non-target background components that prevented adequate resolution of the surrogate, accurate quantitation was not possible. No further corrective action was appropriate.

### **Matrix Spike Recovery Exceptions:**

The matrix spike recovery of Diesel Fuel for sample P13SCSB0810F was outside the control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supports this conclusion. Since the unspiked samples contain high analyte concentrations relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside the control criteria. The associated QA/QC results indicate the analysis was in control. No further corrective action was appropriate.

### **Elevated Method Reporting Limits:**

Samples P13SCSB0900F, P13SCSB1000F, P13SCSB0800F, P13SCSB0802F, P13SCSB0805F, P13SCSB0810F, P13SCSB0810FMS, and P13SCSB0810FMSD required dilution due to the presence of elevated levels of target and non-target analytes. The reporting limits are adjusted to reflect the dilution.

#### Sample Notes and Discussion

Samples P13SCSB0900F, P13SCSB1000F, P13SCSB1100F, P13SCSB1102F, P13SCSB0805F contained an unknown hydrocarbon pattern within the Diesel Fuel range, but did not resemble Diesel Fuel. The samples were quantitated and reported as Diesel Fuel.

Approved by: Date: 7-10-5

# CHAIN OF CUSTODY DOCUMENTATION

5250148 MACTEC 5341 Old Redwood Highway Suite 300 Petaluma, CA 94954

CHAIN OF CUSTODY FURM

Sea.	No.:	Nο	1113
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/707\ 702 2000	
(707) 793-3800	
` '	

Samplers: Tavid Roughe / South Tucker

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Job Numl	ber:	3/e1B	OHB128,02				D <i>F076</i> D <i>F</i> 074	1 42	$\vec{a}_{Y}$
Name/Lo	cation:	CAM	P PARKS, DUH	IN			ANALYSIS REC	QUESTED	- <del>1</del>
Project M	lanager:	Beth	Flynn R	ecorder: David Scorne (Signature Required)					
MATRIX	# CONTAINE & PRESER		SAMPLE NUMBER	DATE		-			
Water Soil Air	Unpres. H2SO4 HNO3 HCL				STATION DESCRIPTION			2A3#	_
> "	5 보 피 그	YR	SEQ	YR MO DAY TIME	Di	PTH		++++	十
_X	1	PI	35K5B0900F	0506031350			+ + + + + + + + + + + + + + + + + + + +	+++++	+
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X	1		3965809051					3	$\perp$
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$\mathcal{N}$	11	PI	3565B1000F			<del>   √}  -</del>		++++	十
*		PI	35CSB1002F	10506031415				Ne	+
K		RI	3565B1005F	050603,420				111711	4
X	1	Pi		0506031430	,	l XI			$\perp$
1		[ # 1		0506031440				9	
		71	276 70 (100)	المادان المصالما الما					T
1		7 1	172011181676K	0506031443					
	×	A	DDITIONAL INFORMATION			CHAIN OF CUST	ODY RECORD		
	SAMPLE NUMB	ER				OTHER OF GOO!			
YR	SEQ		TURNAROUNE	TIME/ REMARKS	Relinquished By (Signature)	(Print Name)	(Company)	Date/Time	
			STANDARD TH	7	David 3 come	_DAVILBR	am MACTEC		<u> </u>
- - -			CHILDREN THE COLUMN		Received By (Signature)	_(Print Name)	(Company) (3/2)	Date/Time	
			1		PACO P	$\sim$ $\omega$	11 2 19 2/9	المعيون الما	

Date/Time 1040 Relinquished By (Signature) Date/Time (Print Name) (Company) (Company) Date/Time (Print Name) Received By (Signature) Method of Shipment: FED

(Company)

(Print Name)

P. BINS

Date/Time

Relinquished By (Signature)



# CONTAINERS

& PRESERV

YR

Unpres. H2SO4 HNO3 HCL

Job Number:

MATRIX

Water Soil Air

Name/Location:

Project Manager:

5250148

5341 Old Redwood Highway Suite 300 Petaluma, CA 94954

CHAIN OF CUSTODY FURM

DATE

DAY

YR

МО

50603

Seq. No.: Nº \_\_\_\_\_1110

Lab: Columbia

DE076 2+32 34

Petaluma, CA 94954 (707) 793-3800	Samplers: David	Browne	Scott Tucker
361854 A17 B	07	•	

SAMPLE NUMBER

SEQ

Recorder: -(Signature Required)

TIME

•	ANALYSIS REQUESTED
STATION DESCRIPTION  DEPTH	± 4B#
·	X
	X // // // // // // // // // // // // //
	X
	X /P /P
	X

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	ADDITIONAL INFORMATION																											
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Relinquished By (Signature) (Print Name  Received By (Signature) (Print Name  P.BINS C	Browne MACTER  (company)  (S)  (3/05	Date/Time
Received By (Signature) (Print Name	e) (Company)	िह्नु।
Relinquished By (Signature) (Print Name)	AS 6/3/05 1	715 Date/Time
Received By (Signature) (Print Name)	CHEZ CHS 64	Date/Time
Retinquished By (Signature) (Prot Name)	(Company)	Date/Time
Received By (Signature) (Print Name)	(Company)	Date/Time

Laboratory Copy

Project Office Copy

Field or Office Copy



5090 Caterpillar Road Redding, CA 96003 Phone: (530) 244-5262

Phone: (530) 244-5262 Fax #: (530) 244-4109

	, COOLER RECEIPT FORM				
Project/	Client: MACTEC/ CAMP PARKS	_Batch No.:	DFO	76	
1.	Cooler(s)/Sample(s) received on: 6/4/65	Shipped via:	_Fx_		
	Shipping Bill # (s): SEE DF075	# of Coolers/F	ackages	1	• .
2.	Radiological Screening by:	Acce	ptable	Rejecte	ed
3.	Custody seals on outside of cooler:  If yes, where? Front Rear Lt Side Rt Side	<del></del>	YES	NO	N/A
	Seals intact:		YES	NO	
	COOLER/SAMPLE PROCESS	ING			
4.	Sample Processing/Tagging by:		· · · · · · · · · · · · · · · · · · ·		
5.	Cooler(s)/Sample(s) Temp's:		·	<u> </u>	_
	(or) Temp. Blank (if included):	<u> </u>			
6.	Type of packing material (circle): Ice Blue Ice Bubble Wrap Bu	ble Bags Z	p Locks	Webbir	ıg
	Other:				
7.	Custody papers properly filled out (ink, signed, dated, released, etc.)?		<b>LES</b>	NO	
8.	Containers arrived in good condition (not broken, leaking, etc.)?	•	(FES)	NO	
9.	Samples received with adequate holding time remaining to conduct analy	sis?	YES	NO	
10.	Container labels complete (i.e. analysis, preservation, date/time, etc.)?		YES	ONO .	
(1 <u>1</u> .)	Container labels and tags agree with custody papers?		198	MO)	
12.	Correct types of containers used for the tests indicated?		YES (	NO	•
	a.) Adequate sample received? If not, note on Exception Report	rt.	(ES)	NO .	
13.	Containers supplied by:		CAS	<b>Other</b>	>
14.	Preserved containers received with the appropriate preservative?		YES	NO	MA
·	pH: (or) See pH log.				
15.	VOA vials free of air bubbles?		YES	NO	MA
16.	Trip Blank preparation date:		CAS	Other	N/A
17.	Volatile Soil samples: Encores or Plugs in Vials	•			
	Freezer or GC/MS Da	ite:	Time:_		₹N/A

See Exception Report for discrepancies.



5090 Caterpillar Road Redding, Ca. 96004

Phone: 530-244-5227 Fax

Fax: 530-244-4110

	SAMPLE RECEIPT EXCEPTION REPORT										
Sample Batch #:	DF076	Client/Project:	MACTEC / CAMP	PARKS							
1 Holding Time Issues	2 Temperature Issues	COC/Label Issues	4 Container Issues	5 Other							
		<u> </u>									
5.) ALL Jo	: L SAMPLAS	RECIEIVED IN	PLASTIC CONTHO	vers.							
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ACC	SAMPLES AI	22 Sol		·							
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			·								
		Corrective Actions Tak	en								
Marin As	Son Confirm	ned	•								
/V/AILUX N-	Son Confirm	Q) cas	•								
				·							
Initiated By:	P		Client:	0							
1	, ,	Client No	tification By:	-							
Date:	1/4/05		Date:								
1											

# GC TPH DIESEL

Sample data

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076001

Matrix: SOIL Level: LOW

Lab File ID: F0706013

P13SCSB0900F

Sample Wt/Vol: 50.0 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/10/05

Date Analyzed: 07/06/05

% Moisture: not dec. 21

Extraction Type: SONICATION

Dilution Factor: 20.0

CAS NO.	COMPOUND	Units:	mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL	(C10-C24)		16	250	320	

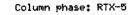
Data File: \\redding3\acqu\Target\Ch

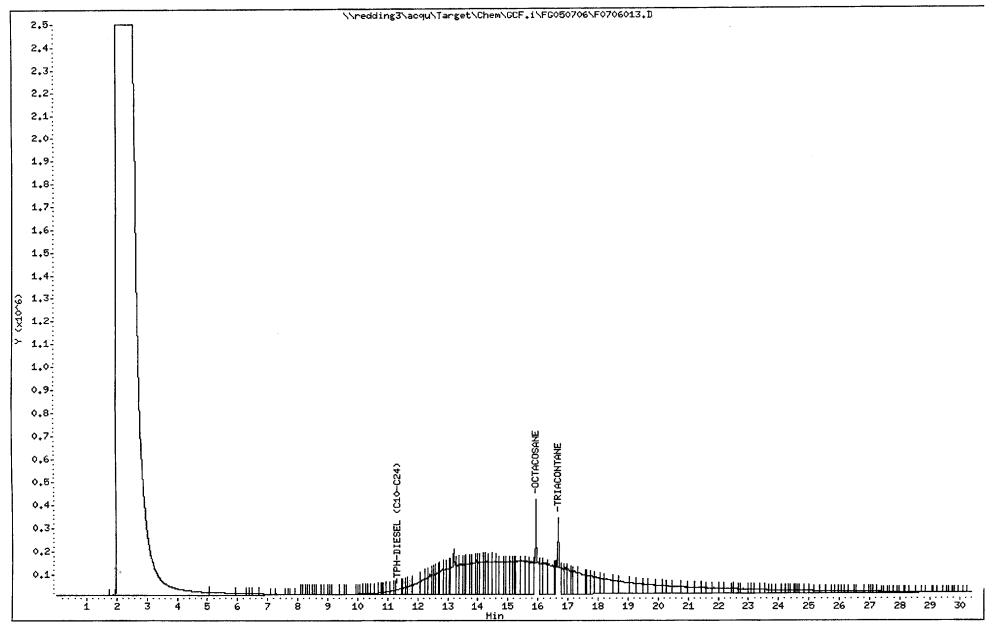
Date : 06-JUL-2005 19:45 Client ID: P13SCSB0900F Sample Info: DF076001

Instrument: GCF.i

Operator:

Column diameter: 0.53





LOW

CLIENT ID.

P13SCSB0902F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Level:

Case No.: DF076

SDG No.: DF076

Lab Sample ID:

DF076002

Matrix:

SOIL

G0630005

Sample Wt/Vol: 49.8 G

Lab File ID:

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/10/05

1 ML

Date Analyzed:

06/30/05

% Moisture: not dec. 21

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24) 0.80 13 3.3

SW846 SW8015

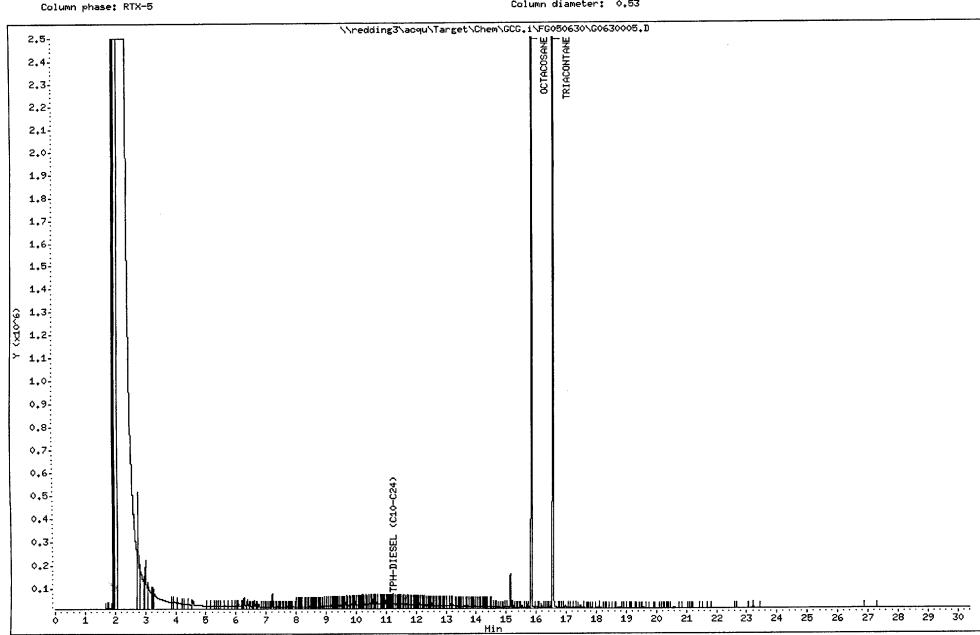
Data File: \\redding3\acqu\Target\Ch

Date : 30-JUN-2005 13:19 Client ID: P13SCSB0902F Sample Info: DF076002

Instrument: GCG.i

Operator:

Column diameter: 0.53



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0905F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076 Lab Sample ID: DF076003

Matrix: SOIL Level: LOW Lab File ID: G0630006

Sample Wt/Vol: 49.6 G Date Collected: 06/03/05

Extract Vol: 1 ML Date Extracted: 06/10/05

% Moisture: not dec. 21 Date Analyzed: 06/30/05

Extraction Type: SONICATION Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/I	(g MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL	(C10-C24)	0.80	13	2.5	J

FORM I SV-1

SW846 SW8015

Data File: \\redding3\acqu\Target\Cr

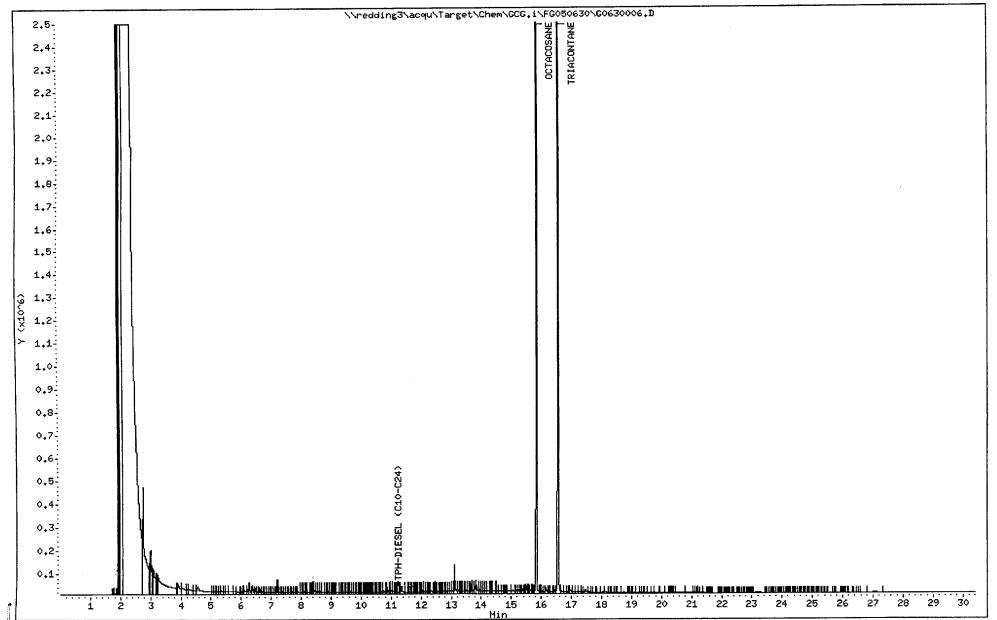
Date : 30-JUN-2005 13:59 Client ID: P13SCSB0905F Sample Info: DF076003

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB0910F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076 Lab Sample 1

Lab Sample ID: DF076004

Matrix: SOIL Level: LOW Lab File ID: G0630007

Sample Wt/Vol: 50.6 G Date Collected: 06/03/05

Extract Vol: 1 ML Date Extracted: 06/10/05

% Moisture: not dec. 19 Date Analyzed: 06/30/05

Extraction Type: SONICATION Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL	(C10-C24)	0.78	12	12	U

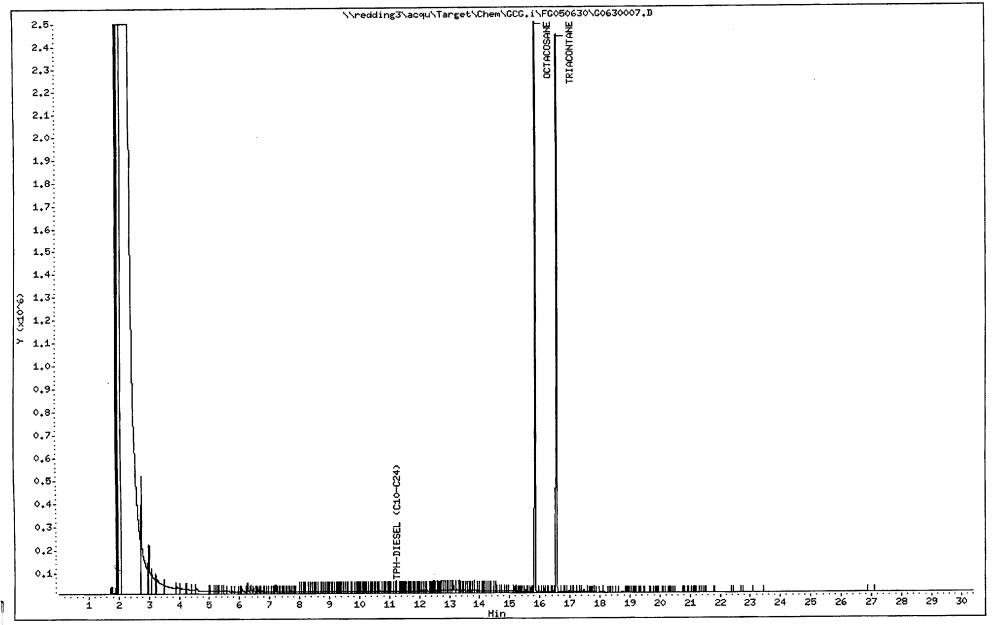
Date: 30-JUN-2005 14:39 Client ID: P13SCSB0910F Sample Info: DF076004

Instrument: GCG.i

Operator:

Column diameter: 0.53





SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB1000F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076005

SOIL Level: LOW Lab File ID: F0706014 Matrix:

Sample Wt/Vol: 49.5 G Date Collected: 06/03/05

Date Extracted: 06/10/05 1 ML Extract Vol:

Date Analyzed: 07/06/05 % Moisture: not dec. 14

Dilution Factor: 10.0 Extraction Type: SONICATION

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND Q 7.4 120 340 PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_

Data File: \\redding3\acqu\Target\Che

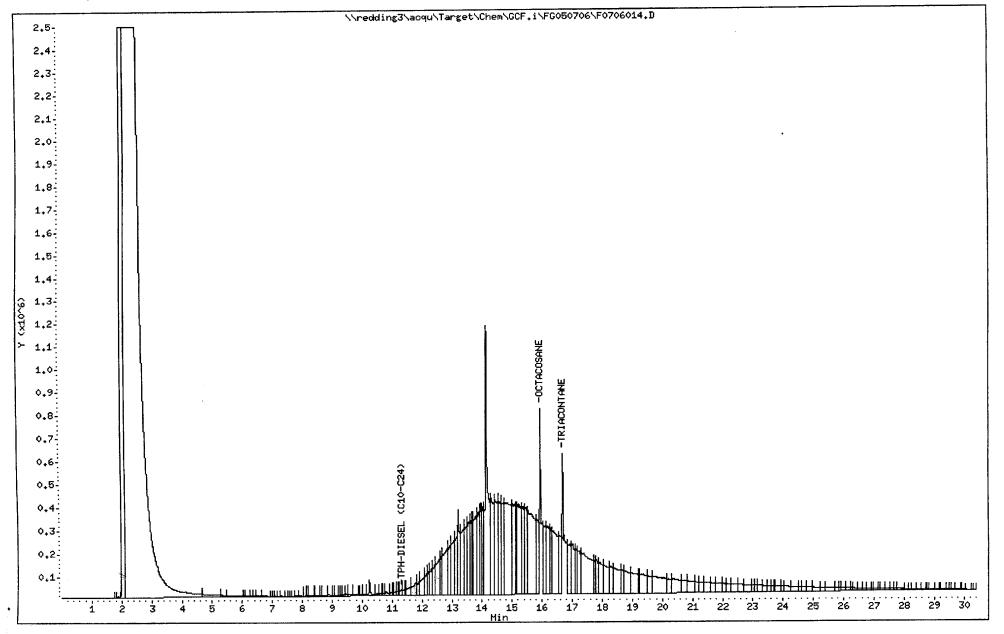
Date: 06-JUL-2005 20:25 Client ID: P13SCSB1000F Sample Info: DF076005

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

P13SCSB1002F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076006

Matrix: SOIL Level:

Lab File ID:

G0630008

Sample Wt/Vol: 50.9 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

% Moisture: not dec. 16

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg  $\mathtt{MDL}$ RLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24) 0.75 12 11

FORM I SV-1

SW846 SW8015

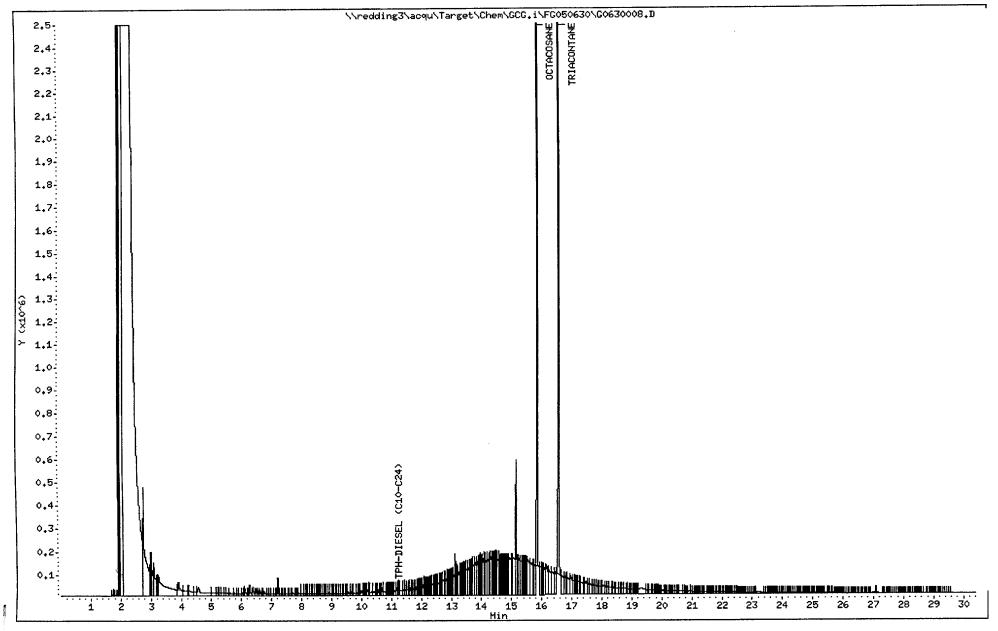
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050630\G0630008.D

Date: 30-JUN-2005 15:19 Client ID: P13SCSB1002F Sample Info: DF076006

Instrument: GCG.i

Operator:





1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Lab Sample ID: DF076007

Case No.: DF076 SDG No.: DF076

Matrix: SOIL Level: LOW

Lab File ID: G0630009

P13SCSB1005F

Sample Wt/Vol: 50.6 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted:

% Moisture: not dec. 32

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

COMPOUND Units: mg/Kg MDL RLRESULT Q CAS NO. PHCC10C24---TPH-DIESEL (C10-C24) 0.93 14 14

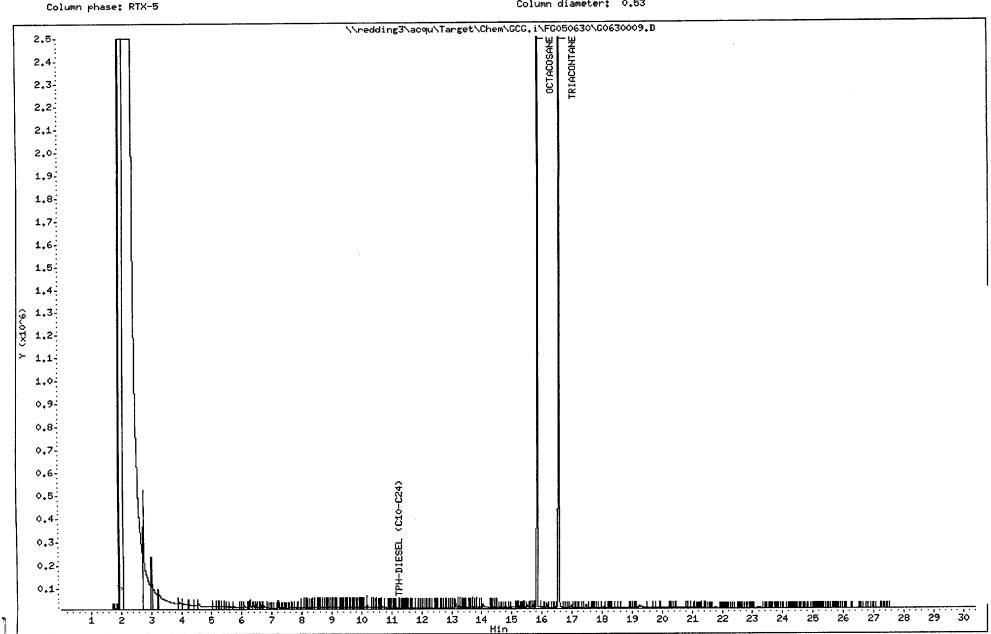
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050630\G0630009.D

Date : 30-JUN-2005 15:59 Client ID: P13SCSB1005F Sample Info: DF076007

Instrument: GCG.i

Operator:



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

P13SCSB1010F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076008

Matrix: SOIL Level:

Lab File ID:

G0630010

Sample Wt/Vol: 49.6 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

% Moisture: not dec. 23

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT Q

PHCC10C24---TPH-DIESEL (C10-C24)\_

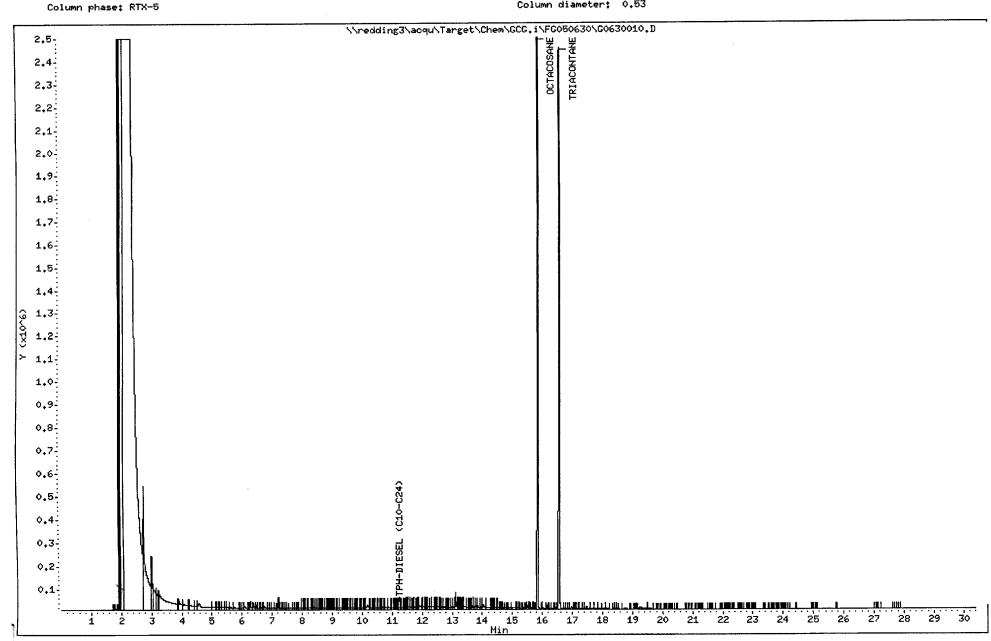
0.82

13 13 Data File: \\redding3\acqu\Target\Ch

Date : 30-JUN-2005 16:39 Client ID: P13SCSB1010F Sample Info: DF076008

Instrument: GCG.i

Operator:



CLIENT ID.

P13SCSB1100F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076009

Matrix: SOIL Level:

Lab File ID:

Sample Wt/Vol: 50.4 G

LOW

F0706015

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/10/05

07/06/05

% Moisture: not dec. 18

Date Analyzed:

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT

Q

PHCC10C24---TPH-DIESEL (C10-C24)\_

0.77

12 61

FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050706\F0706015.D

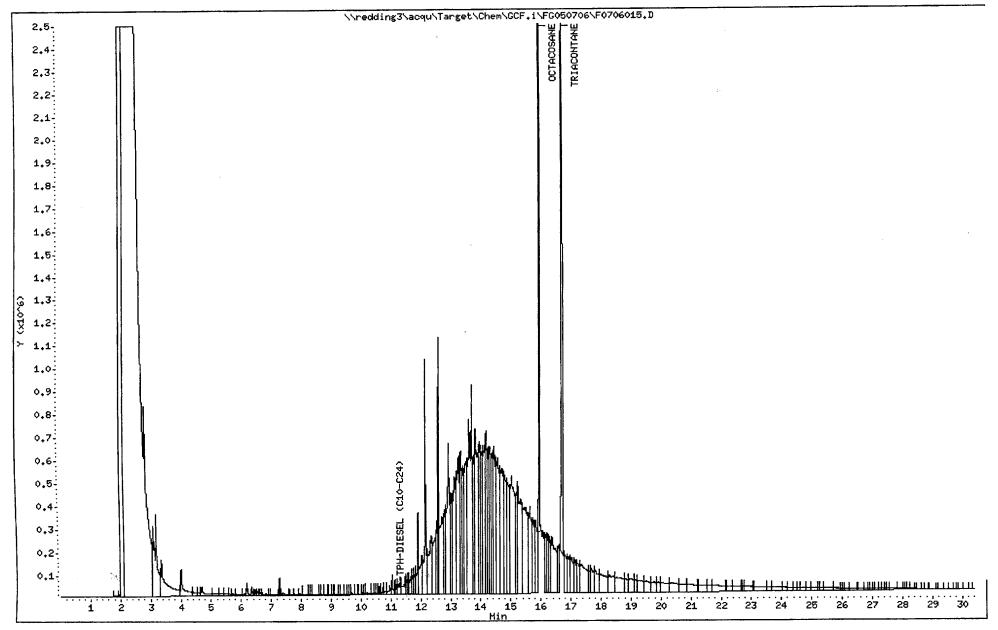
Date : 06-JUL-2005 21:05 Client ID: P13SCSB1100F Sample Info: DF076009

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

P13SCSB1102F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076010

Matrix: SOIL Level:

Lab File ID:

G0630011

Sample Wt/Vol: 49.8 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/10/05

% Moisture: not dec. 19

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND PHCC10C24---TPH-DIESEL (C10-C24) 0.78 12 52

FORM I SV-1

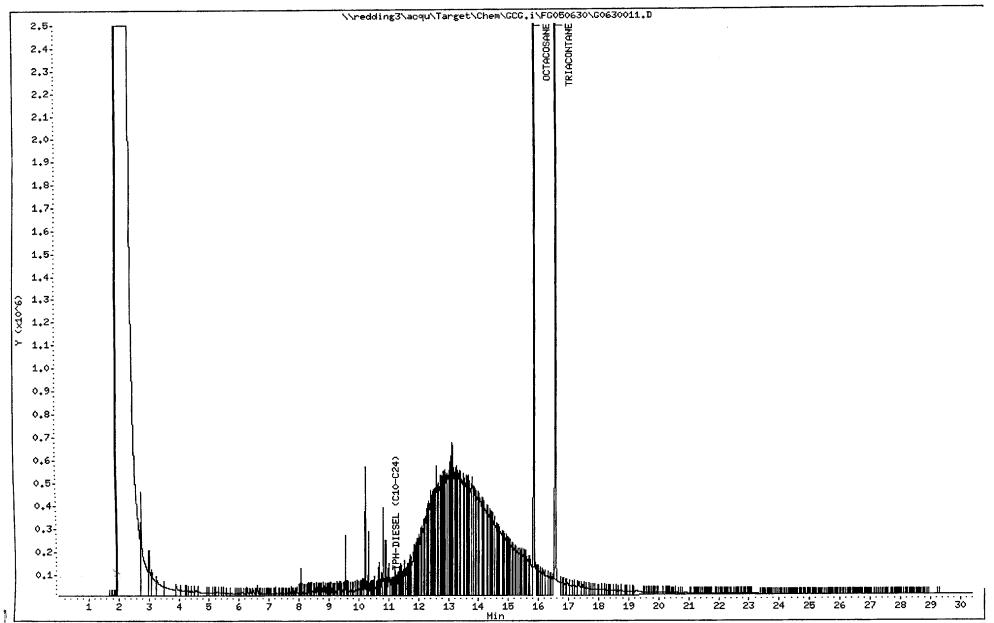
Data File: \\redding3\acqu\Target\Cr

Date: 30-JUN-2005 17:19 Client ID: P13SCSB1102F Sample Info: DF076010

Instrument: GCG.i

Operator:





SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB1200F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076011

Matrix: SOIL Level:

% Moisture: not dec. 21

LOW

Lab File ID:

G0630014

Sample Wt/Vol: 50.0 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted:

1 ML

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

Units: mg/Kg

MDL

RLRESULT Q

PHCC10C24---TPH-DIESEL (C10-C24)

COMPOUND

0.80

13 13

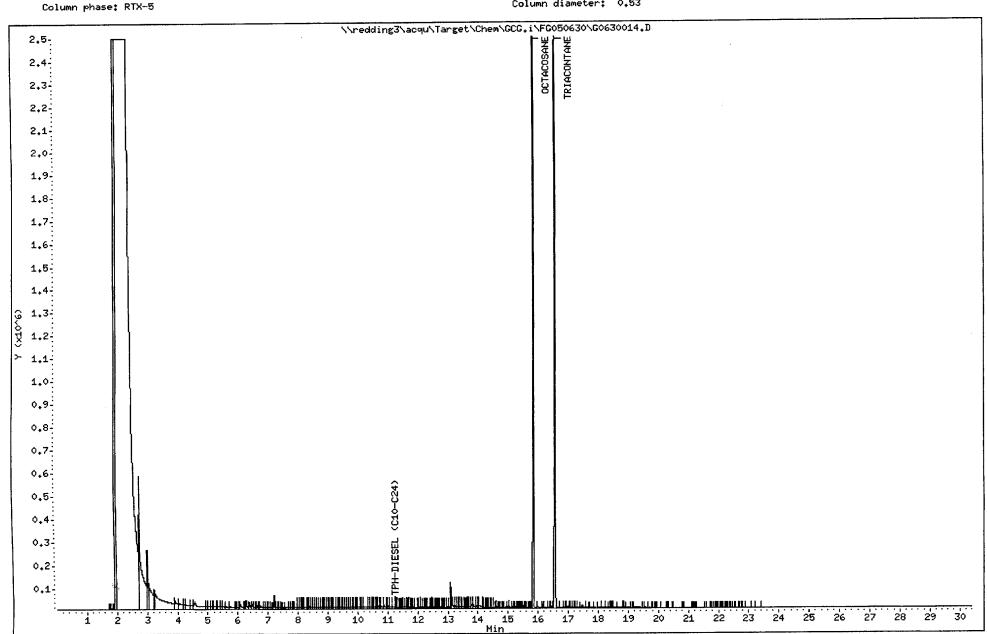
FORM I SV-1

Data File: \\redding3\acqu\Target\Che '000 'F005000' 0005000' 0005000' 0005000' 0005000' 0005000' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 00050' 0

Date : 30-JUN-2005 19:19 Client ID: P13SCSB1200F Sample Info: DF076011

Instrument: GCG.i

Operator:



CLIENT ID.

P13SCSB1205F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076012

Matrix: SOIL Level:

LOW

Lab File ID:

G0630015

Sample Wt/Vol: 49.4 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

Date Analyzed: 06/30/05

% Moisture: not dec. 28 Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT Q CAS NO. COMPOUND PHCC10C24---TPH-DIESEL (C10-C24)\_ 0.89 14 14

FORM I SV-1

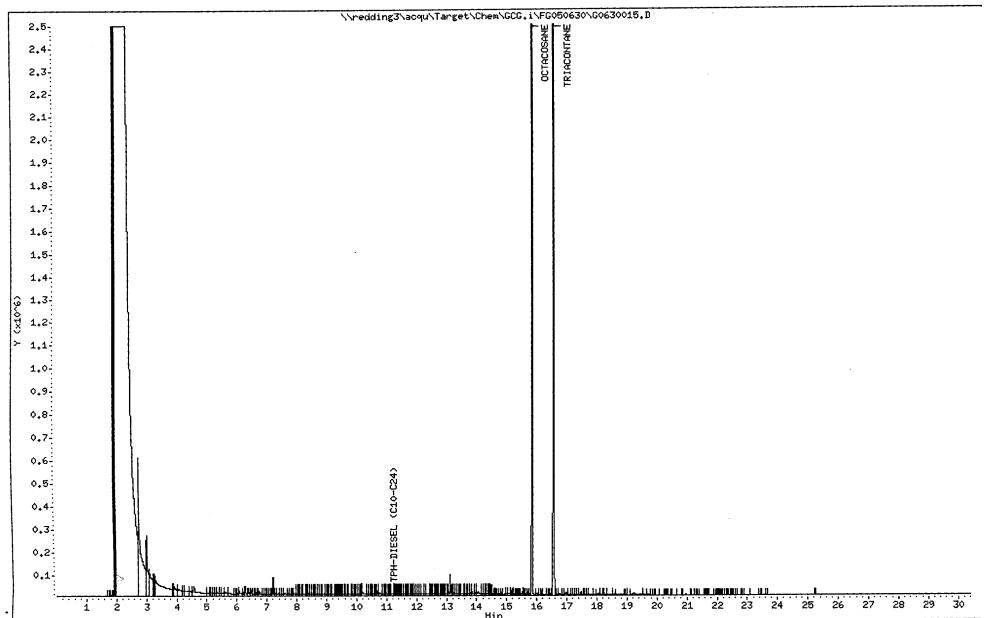
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050630\G0630015.D

Date: 30-JUN-2005 20:00 Client ID: P13SCSB1205F Sample Info: DF076012

Instrument: GCG.i

Operator:

Column phase: RTX-5



CLIENT ID.

P13SCSB1210F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076013

Matrix: SOIL Level: LOW

Lab File ID:

G0630016

Sample Wt/Vol: 49.4 G

Date Collected: 06/03/05

Extract Vol:

Date Extracted:

1 ML

Date Analyzed: 06/30/05

Extraction Type: SONICATION

% Moisture: not dec. 26

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

 $\mathtt{MDL}$ 

RL

RESULT Q

PHCC10C24---TPH-DIESEL (C10-C24)

0.86

14 14

Data File: \\redding3\acqu\Target\Ch

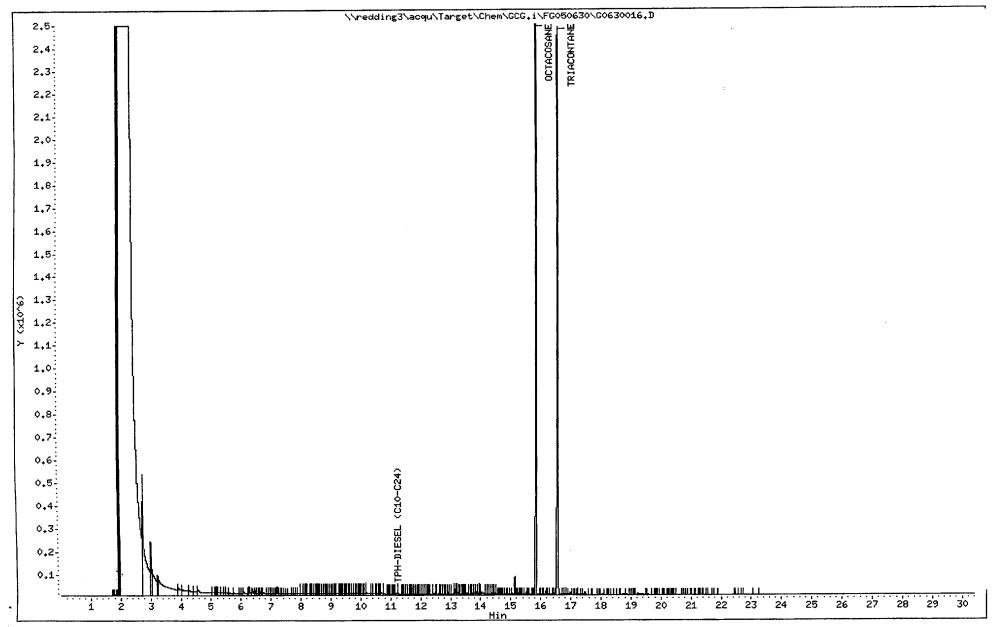
Date: 30-JUN-2005 20:40 Client ID: P13SCSB1210F Sample Info: DF076013

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076014

P13SCSB1300F

Matrix: SOIL Level:

Lab File ID:

Sample Wt/Vol: 50.4 G

G0630017

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

06/30/05

% Moisture: not dec. 18

Date Analyzed:

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units:	mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL (	C10-C24)		0.77	12	7.2	J

FORM I SV-1

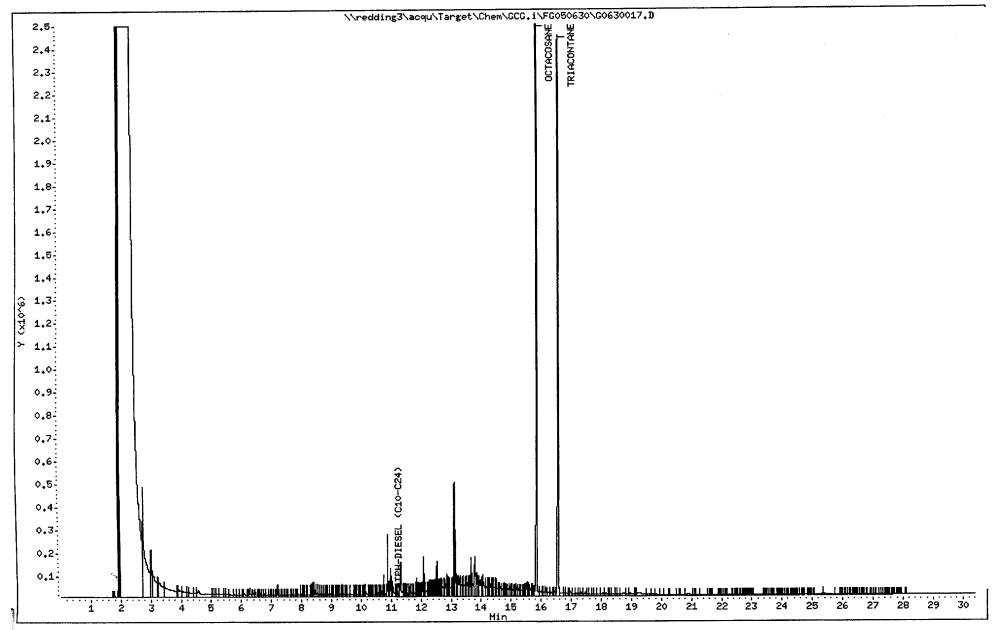
Data File: \\redding3\acqu\Target\C\

Date : 30-JUN-2005 21:20 Client ID: P13SCSB1300F Sample Info: DF076014

Column phase: RTX-5

Instrument: GCG.i

Operator:



1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

P13SCSB1305F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID: DF076015

Matrix: SOIL Level:

% Moisture: not dec. 23

Lab File ID:

G0630018

Sample Wt/Vol: 49.7 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

 $\mathtt{MDL}$ 

RL

RESULT

13

CAS NO.

COMPOUND

Units: mg/Kg

Q

PHCC10C24---TPH-DIESEL (C10-C24)

0.82

13

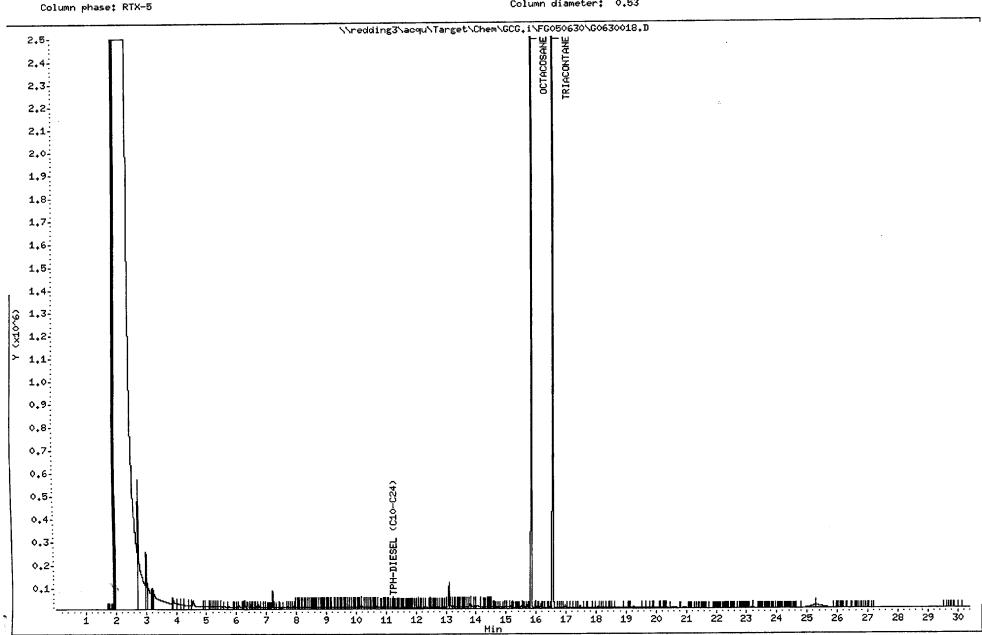
FORM I SV-1

Data File: \\redding3\acqu\Target\Ch ' \\

Date : 30-JUN-2005 22:01 Client ID: P13SCSB1305F Sample Info: DF076015

Instrument: GCG.i

Operator:



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB1310F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076016

Matrix: SOIL Level:

% Moisture: not dec. 24

Lab File ID:

G0630019

Sample Wt/Vol: 50.8 G

LOW

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted:

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT

Q

PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_

0.83

13

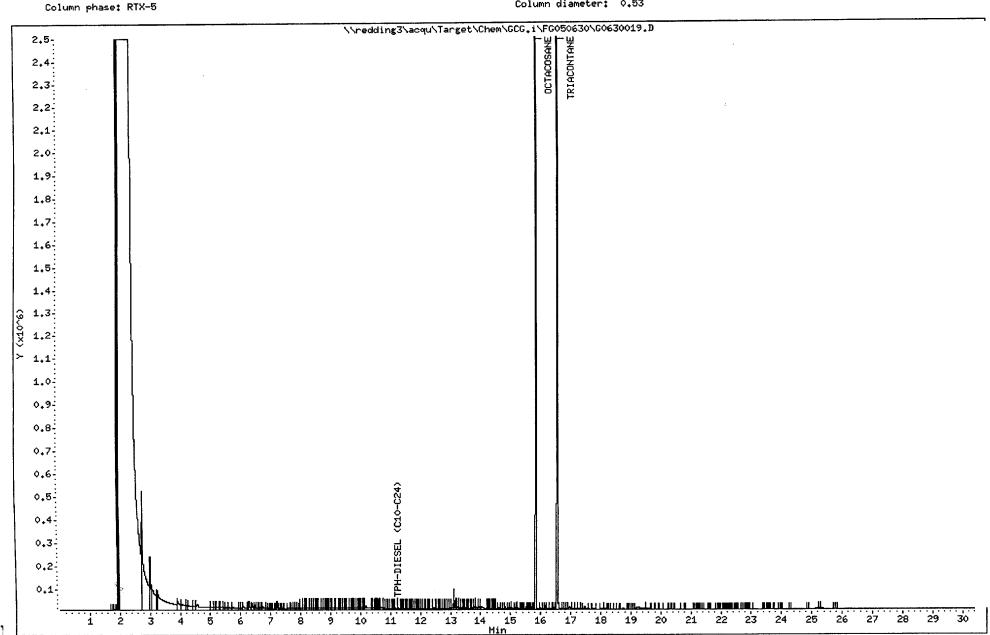
13

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050630\G0630019.D

Date : 30-JUN-2005 22:40 Client ID: P13SCSB1310F Sample Info: DF076016

Instrument: GCG.i

Operator:



CLIENT ID.

P13SCSB0800F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Lab Sample ID: Case No.: DF076 SDG No.: DF076 DF076017

Matrix: SOIL Level: Lab File ID: F0706016 LOW

Sample Wt/Vol: 50.6 G Date Collected: 06/03/05

Date Extracted: 06/10/05 Extract Vol: 1 ML

Date Analyzed: 07/06/05 % Moisture: not dec. 21

Extraction Type: SONICATION Dilution Factor: 2.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL (	(C10-C24)	1.6	25	13	J

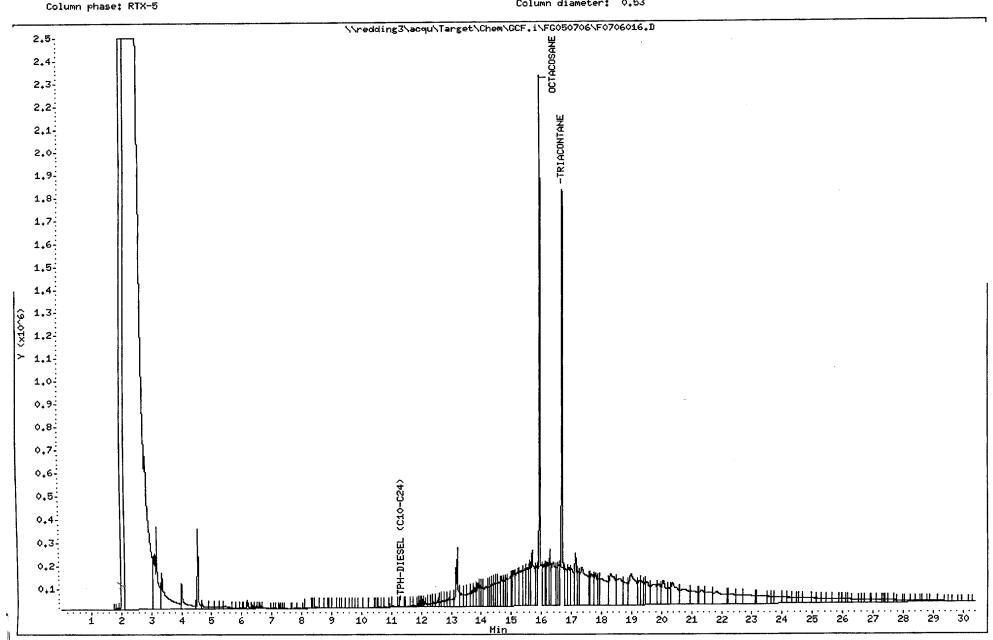
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050706\F0706016.D

Date : 06-JUL-2005 21:44 Client ID: P13SCSB0800F Sample Info: DF076017

Instrument: GCF.i

Operator:



CLIENT ID.

P13SCSB0802F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076 Lab Sample ID: DF076018

Matrix: SOIL Level: LOW Lab File ID: G0707003

Sample Wt/Vol: 50.1 G Date Collected: 06/03/05

Extract Vol: 1 ML Date Extracted: 06/10/05

% Moisture: not dec. 25 Date Analyzed: 07/07/05

Extraction Type: SONICATION Dilution Factor: 2.0

 CAS NO.
 COMPOUND
 Units: mg/Kg
 MDL
 RL
 RESULT Q

 PHCC10C24---TPH-DIESEL (C10-C24)
 1.7
 27
 120

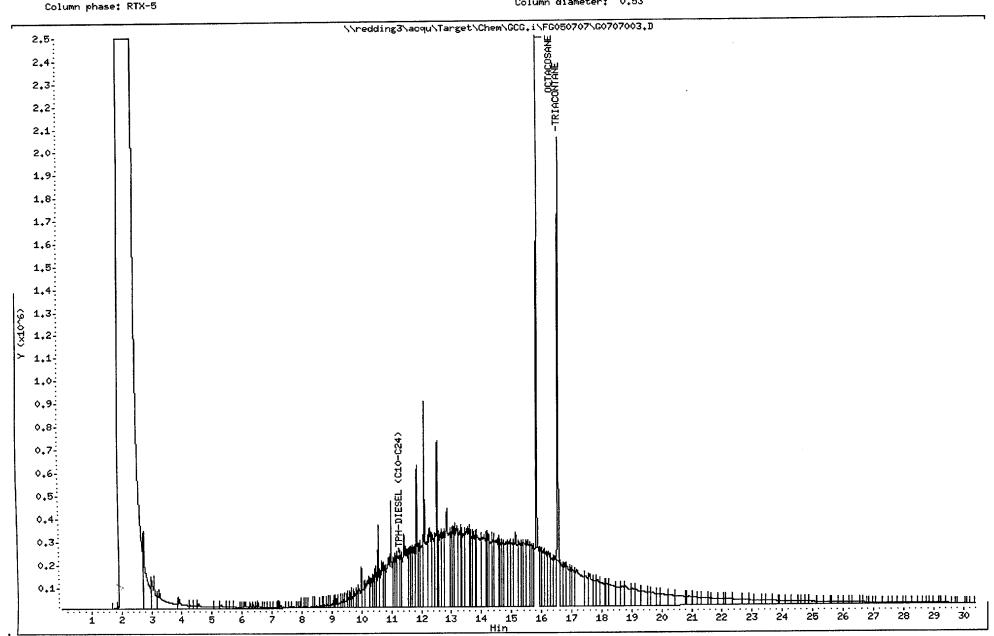
FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050707\G0707003.D

Date : 07-JUL-2005 11:21 Client ID: P13SCSB0802F Sample Info: DF076018

Instrument: GCG.i

Operator:



1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET CLIENT ID.

P13SCSB0805F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076 Lab Sample ID: DF076019

Matrix: SOIL Level: LOW Lab File ID: F0706018

Sample Wt/Vol: 50.7 G Date Collected: 06/03/05

Extract Vol: 1 ML Date Extracted: 06/10/05

% Moisture: not dec. 26 Date Analyzed: 07/06/05

Extraction Type: SONICATION Dilution Factor: 5.0

CAS NO.	COMPOUND	Units:	mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL	(C10-C24)		4.2	67	100	

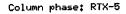
FORM I SV-1

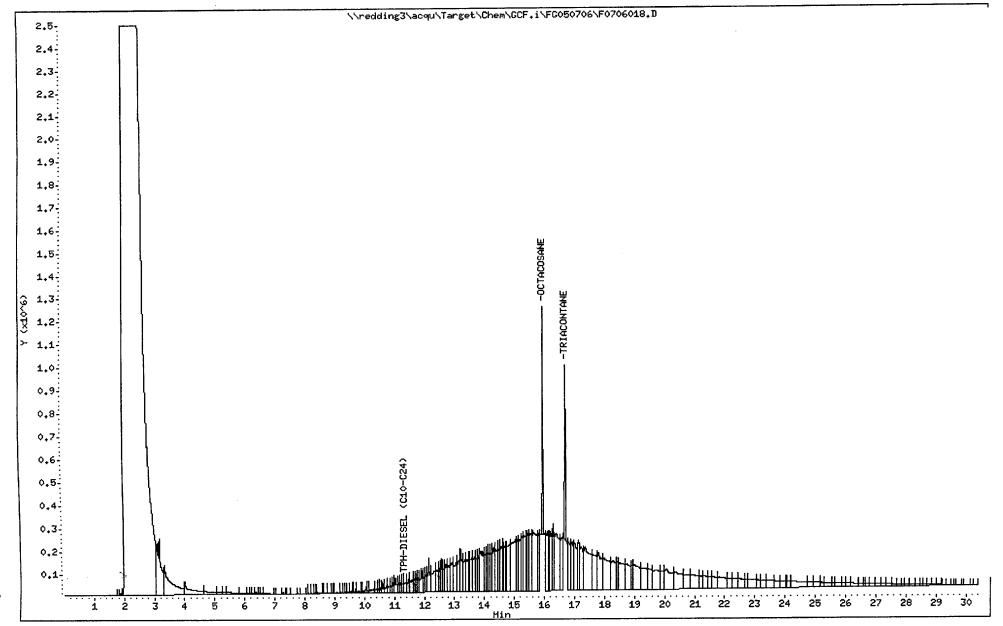
Data File: \\redding3\acqu\Target\Ch

Date : 06-JUL-2005 23:03 Client ID: P13SCSB0805F Sample Info: DF076019

Instrument: GCF.i

Operator:





1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET CLIENT ID.

P13SCSB0810F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DF076020

Matrix: SOIL Level:

LOW

Lab File ID:

F0706010

Sample Wt/Vol: 49.6 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/10/05

% Moisture: not dec. 12

Date Analyzed: 07/06/05

Extraction Type: SONICATION

Dilution Factor: 50.0

CAS NO.

COMPOUND

Units: mg/Kg

MDL

RL

RESULT Q

PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_

36

570 2500

FORM I SV-1

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050706\F0706010.D

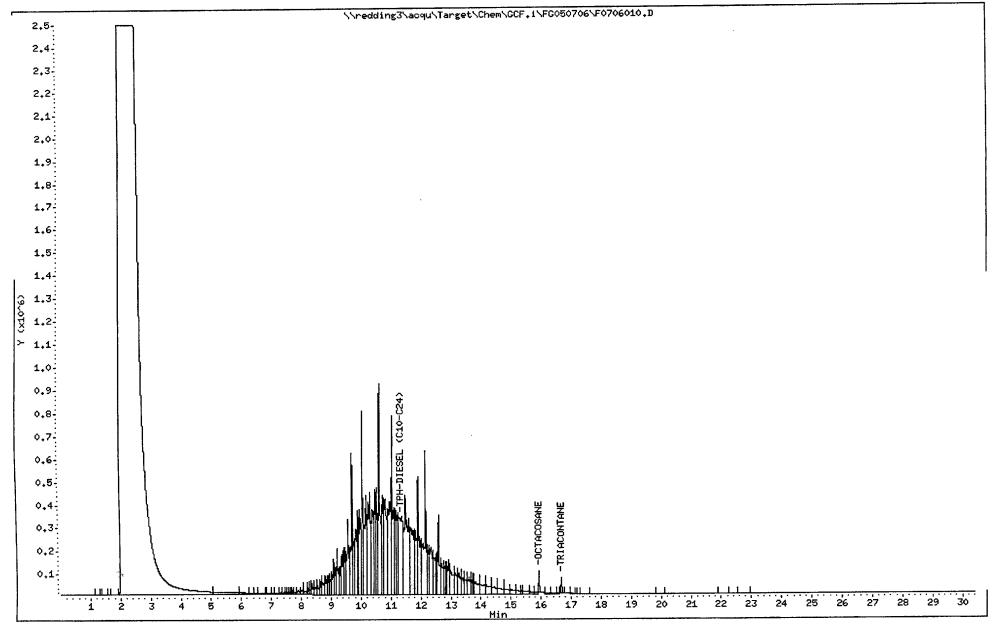
Date : 06-JUL-2005 17:45 Client ID: P13SCSB0810F Sample Info: DF076020

Instrument: GCF.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



**QC** Summary

Data File: \\redding3\acqu\Target\Ch

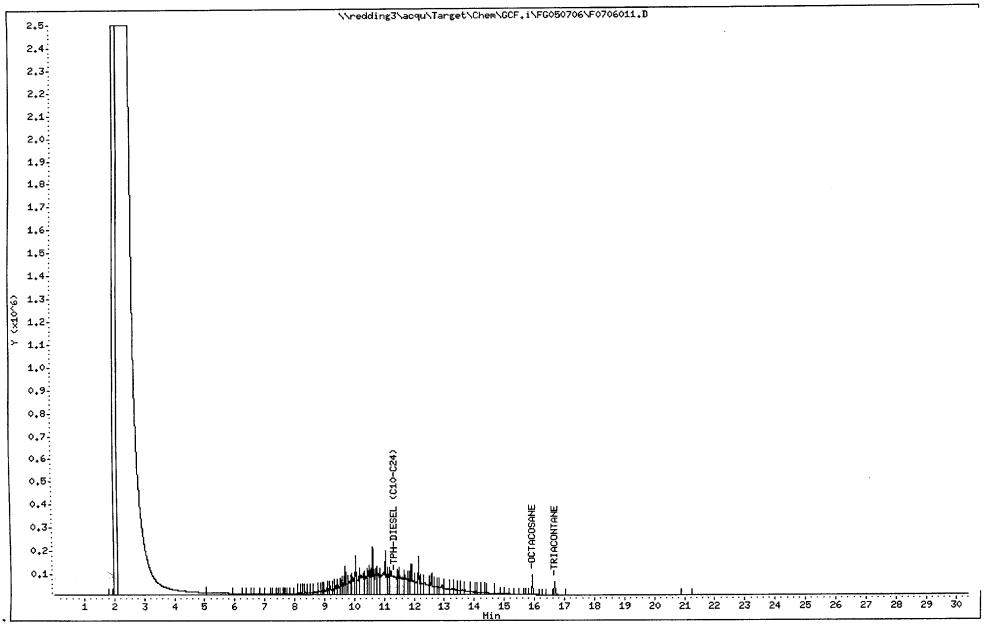
Date : 06-JUL-2005 18:25 Client ID: P13SCSB0810FMS Sample Info: DF076020MS

Instrument: GCF,i

Operator:

Column diameter: 0.53

Column phase: RTX-5

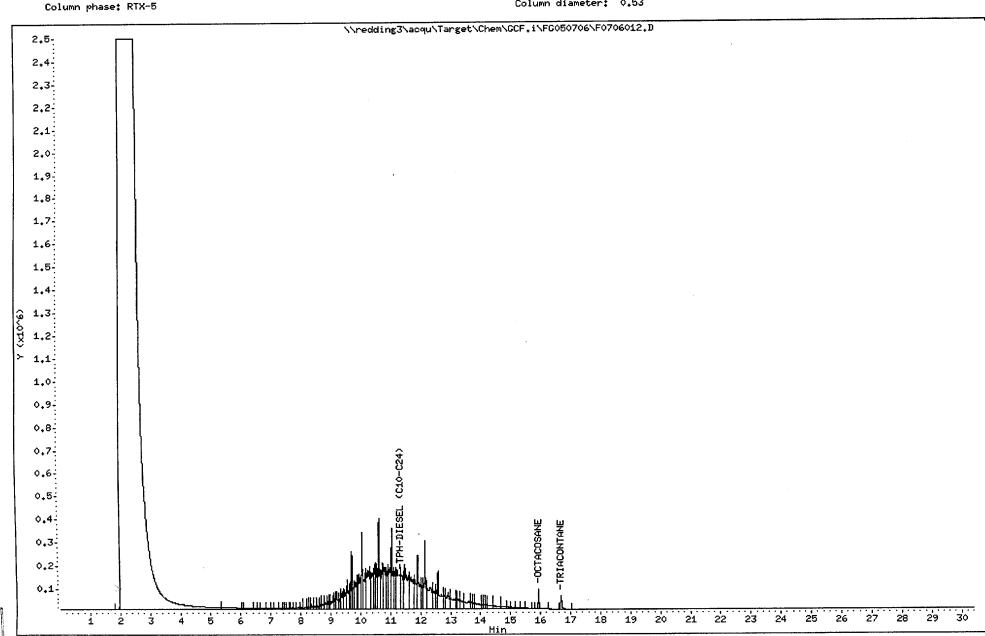


Data File: \\redding3\acqu\Target\Ch

Date : 06-JUL-2005 19:05 Client ID: P13SCSB0810FMSD Sample Info: DF076020MSD

Instrument: GCF.i

Operator:



Date : 30-JUN-2005 11:59

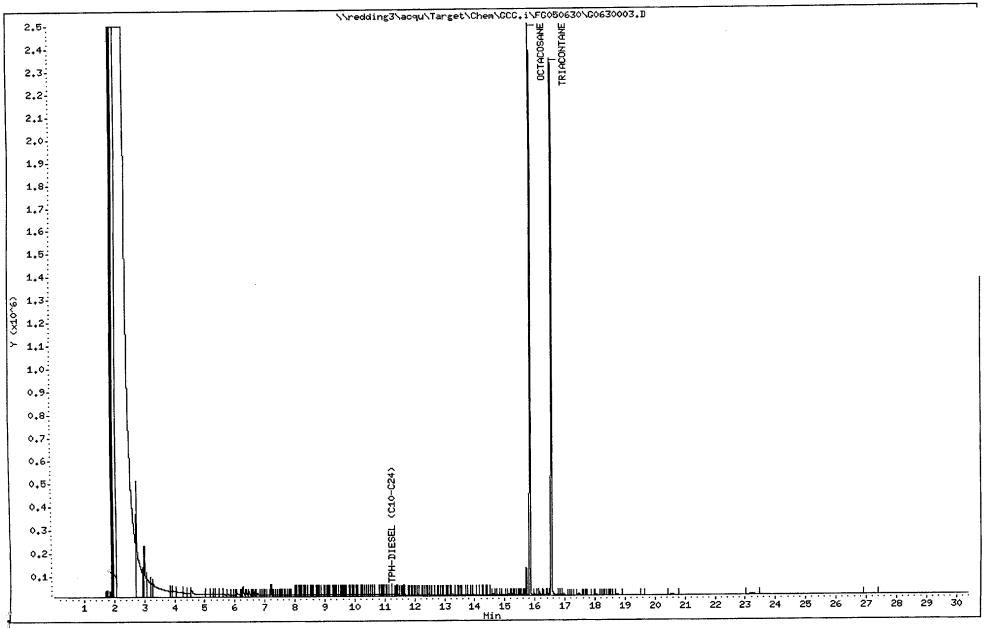
Instrument: GCG.i Client ID: DBS10610

Sample Info: DBS10610

Column phase: RTX-5

Column diameter: 0.53

Operator:



Data File: \\redding3\acqu\Target\Chr

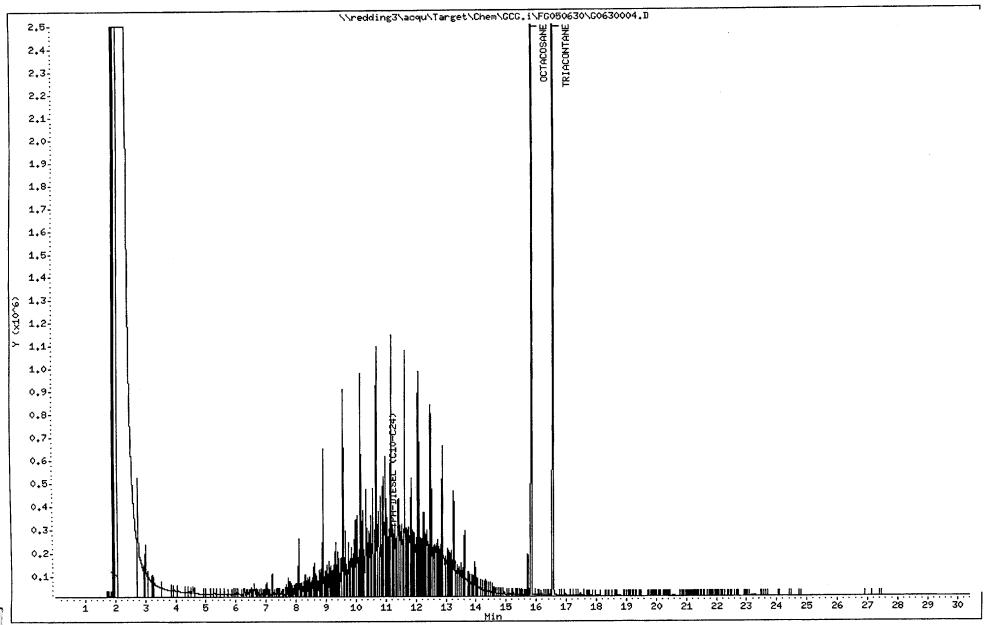
Date : 30-JUN-2005 12:39 Client ID: DBS10610LCS Sample Info: DBS10610LCS

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Lab Sample ID:

DBS10610

DBS10610

Matrix: SOIL Level: LOW

Lab File ID:

G0630003

Sample Wt/Vol: 50.0 G

Date Collected:

Extract Vol:

1 ML

Date Extracted: 06/10/05

Date Analyzed: 06/30/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24) 10 0.63 10 U

FORM I SV-1

## 2C SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

Level: LOW

LAB ID
01       DBS10610       DBS10610       60       64       0         02       DBS10610LCS       79       82       0         03       DF076002       P13SCSB0902F       68       73       0         04       DF076003       P13SCSB0905F       66       72       0         05       DF076004       P13SCSB0910F       62       68       0         06       DF076006       P13SCSB1002F       66       72       0         07       DF076007       P13SCSB1005F       64       70       0         08       DF076008       P13SCSB1010F       62       67       0         09       DF076010       P13SCSB120F       65       71       0         10       DF076011       P13SCSB120F       65       71       0         11       DF076012       P13SCSB120F       71       78       0         12       DF076013       P13SCSB130F       62       66       0         13       DF076016       P13SCSB130F       65       71       0         15       DF076016       P13SCSB0810FMS       100       95       0         18       DF076020MS       P13SCSB0900F </td
02       DBS10610LCS       DBS10610LCS       79       82       0         03       DF076002       P13SCSB0902F       68       73       0         04       DF076003       P13SCSB0905F       66       72       0         05       DF076004       P13SCSB0910F       62       68       0         06       DF076006       P13SCSB1002F       66       72       0         07       DF076007       P13SCSB1005F       64       70       0         08       DF076008       P13SCSB100F       62       67       0         09       DF076010       P13SCSB102F       83       87       0         10       DF076011       P13SCSB120F       65       71       0         11       DF076012       P13SCSB120F       65       71       78       0         12       DF076013       P13SCSB1300F       62       68       0       0         13       DF076016       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB0810F       91       88       0         17       DF076020MSD       P13SCSB0810FMS       106       90       0 <tr< td=""></tr<>
03       DF076002       P13SCSB0902F       68       73       0         04       DF076003       P13SCSB0905F       66       72       0         05       DF076004       P13SCSB0910F       62       68       0         06       DF076006       P13SCSB1002F       66       72       0         07       DF076007       P13SCSB1005F       64       70       0         08       DF076008       P13SCSB100F       62       67       0         09       DF076010       P13SCSB1102F       83       87       0         10       DF076011       P13SCSB1200F       65       71       0         11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1310F       65       71       0         15       DF076020       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19
04         DF076003         P13SCSB0905F         66         72         0           05         DF076004         P13SCSB0910F         62         68         0           06         DF076006         P13SCSB1002F         66         72         0           07         DF076007         P13SCSB1005F         64         70         0           08         DF076008         P13SCSB1010F         62         67         0           09         DF076010         P13SCSB120F         65         71         0           10         DF076011         P13SCSB120F         65         71         0           11         DF076012         P13SCSB120F         71         78         0           12         DF076013         P13SCSB1300F         62         68         0           13         DF076014         P13SCSB1300F         62         66         0           14         DF076015         P13SCSB1310F         65         71         0           15         DF076020         P13SCSB0810FMS         100         95         0           17         DF076020MSD         P13SCSB0810FMSD         106         90         0           19
05         DF076004         P13SCSB0910F         62         68         0           06         DF076006         P13SCSB1002F         66         72         0           07         DF076007         P13SCSB1005F         64         70         0           08         DF076008         P13SCSB1010F         62         67         0           09         DF076010         P13SCSB120F         83         87         0           10         DF076011         P13SCSB1200F         65         71         0           11         DF076012         P13SCSB1205F         71         78         0           12         DF076013         P13SCSB1210F         62         68         0           13         DF076014         P13SCSB1300F         62         66         0           14         DF076015         P13SCSB1310F         65         71         0           15         DF076020         P13SCSB0810F         91         88         0           17         DF076020MS         P13SCSB0810FMS         100         95         0           18         DF076001         P13SCSB0900F         104         104         0           20
06         DF076006         P13SCSB1002F         66         72         0           07         DF076007         P13SCSB1005F         64         70         0           08         DF076008         P13SCSB1010F         62         67         0           09         DF076010         P13SCSB1102F         83         87         0           10         DF076011         P13SCSB1200F         65         71         0           11         DF076012         P13SCSB1205F         71         78         0           12         DF076013         P13SCSB1210F         62         68         0           13         DF076014         P13SCSB1300F         62         66         0           14         DF076015         P13SCSB1310F         65         71         0           15         DF076020         P13SCSB0810FMS         100         95         0           16         DF076020MS         P13SCSB0810FMS         106         90         0           19         DF076001         P13SCSB0900F         104         104         0           20         DF076005         P13SCSB1000F         95         89         0           21
07       DF076007       P13SCSB1005F       64       70       0         08       DF076008       P13SCSB1010F       62       67       0         09       DF076010       P13SCSB1102F       83       87       0         10       DF076011       P13SCSB1200F       65       71       0         11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1310F       65       71       0         15       DF076016       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB1000F       95       89       0         20       DF076009       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
08       DF076008       P13SCSB1010F       62       67       0         09       DF076010       P13SCSB1102F       83       87       0         10       DF076011       P13SCSB1200F       65       71       0         11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810FMS       100       95       0         17       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
09       DF076010       P13SCSB1102F       83       87       0         10       DF076011       P13SCSB1200F       65       71       0         11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
10       DF076011       P13SCSB1200F       65       71       0         11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1000F       111*       109*       2
11       DF076012       P13SCSB1205F       71       78       0         12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1000F       111*       109*       2
12       DF076013       P13SCSB1210F       62       68       0         13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
13       DF076014       P13SCSB1300F       62       66       0         14       DF076015       P13SCSB1305F       65       71       0         15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
14     DF076015     P13SCSB1305F     65     71     0       15     DF076016     P13SCSB1310F     65     71     0       16     DF076020     P13SCSB0810F     91     88     0       17     DF076020MS     P13SCSB0810FMS     100     95     0       18     DF076020MSD     P13SCSB0810FMSD     106     90     0       19     DF076001     P13SCSB0900F     104     104     0       20     DF076005     P13SCSB1000F     95     89     0       21     DF076009     P13SCSB1100F     111*     109*     2
15       DF076016       P13SCSB1310F       65       71       0         16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
16       DF076020       P13SCSB0810F       91       88       0         17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
17       DF076020MS       P13SCSB0810FMS       100       95       0         18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
18       DF076020MSD       P13SCSB0810FMSD       106       90       0         19       DF076001       P13SCSB0900F       104       104       0         20       DF076005       P13SCSB1000F       95       89       0         21       DF076009       P13SCSB1100F       111*       109*       2
19 DF076001       P13SCSB0900F       104       104       0         20 DF076005       P13SCSB1000F       95       89       0         21 DF076009       P13SCSB1100F       111*       109*       2
20 DF076005       P13SCSB1000F       95       89       0         21 DF076009       P13SCSB1100F       111*       109*       2
21 DF076009 P13SCSB1100F 111* 109* 2
==1
22 DF076017 P13SCSB0800F 84 83 0
23 DF076019 P13SCSB0805F 96 92 0
24 DF076018 P13SCSB0802F 92 94 0
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30

OC LIMITS S1 (OCT) = OCTACOSANE (56-110) S2 (TRI) = TRIACONTANE (52-107)

D Surrogates diluted out

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<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits

# SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

Matrix Spike - Sample No.: P13SCSB0810F Level: LOW

COMPOUND	SPIKE	SAMPLE	MS	MS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mq/Kq)	REC #	REC.
======================================	55.868	2498.0	600.66	0*	65-135

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD   REC.	
TPH-DIESEL (C10-C24)	57.311	1117.9	0*	0	30	65-135

RPD: 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

<sup>#</sup> Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

#### 3D SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

LCS - Sample No.: DBS10610

Level: LOW

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	50.000	N/A	36.692	73	65-135

RPD: 0 out of 0 outside limits Spike Recovery: 0 out of 1 outside limits

<sup>#</sup> Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

## SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DBS10610

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

Lab File ID:

G0630003

Lab Sample ID:

DBS10610

Date Extracted:

06/10/05

Extraction Type: SONICATION

Date Analyzed:

06/30/05

Time Analyzed:

1159

Matrix:

SOIL

Level: (low/med)

LOW

Instrument ID:

GCG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

		LAB	LAB	DATE
	CLIENT ID.	SAMPLE ID	FILE ID	ANALYZED
	=======================================		==========	
01	DBS10610LCS	DBS10610LCS	G0630004	06/30/05
02	P13SCSB0902F	DF076002	G0630005	06/30/05
03	P13SCSB0905F	DF076003	G0630006	06/30/05
04	P13SCSB0910F	DF076004	G0630007	06/30/05
05		DF076006	G0630008	06/30/05
06	P13SCSB1005F	DF076007	G0630009	06/30/05
07	P13SCSB1010F	DF076008	G0630010	06/30/05
80	P13SCSB1102F	DF076010	G0630011	06/30/05
09	P13SCSB1200F	DF076011	G0630014	06/30/05
10	P13SCSB1205F	DF076012	G0630015	06/30/05
11	P13SCSB1210F	DF076013	G0630016	06/30/05
12	P13SCSB1300F	DF076014	G0630017	06/30/05
13	P13SCSB1305F	DF076015	G0630018	06/30/05
14	P13SCSB1310F	DF076016	G0630019	06/30/05
15	P13SCSB0810F	DF076020	F0706010	07/06/05
16	P13SCSB0810FMS	DF076020MS	F0706011	07/06/05
17	P13SCSB0810FMSD	DF076020MSD	F0706012	07/06/05
18	P13SCSB0900F	DF076001	F0706013	07/06/05
19	P13SCSB1000F	DF076005	F0706014	07/06/05
20	P13SCSB1100F	DF076009	F0706015	07/06/05
21	P13SCSB0800F	DF076017	F0706016	07/06/05
22	P13SCSB0805F	DF076019	F0706018	07/06/05
23	P13SCSB0802F	DF076018	G0707003	07/07/05

Standards data

### 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Instrument ID: GCG

ICAL Date(s): 06/29/05

Analyte Concentration:

				RRF0.5=G0629013.D RRF4 =G0629016.D			
COMPOUND RRF0.1 RRF0.5 RRF1 RRF2.5 RRF4 ===================================							
OCTACOSANE TRIACONTANE	0.100	0.150 0.150	0.250 0.250	0.300	0.350 0.350		

#### 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

Instrument ID: GCG

ICAL Date(s): 06/29/05

LAB FILE ID: RRF1 =G0629014.D	RRF0.1=G0629012.D RRF2.5=G0629015.D			RRF0.5=G0629013.D RRF4 =G0629016.D					
COMPOUND ====================================	=====	RRF0.1 ===== 5213	RRF0.5 ===== 3440	RRF1 ====== 3643	RRF2.5 ===== 3833	RRF4 ===== 3628	RRF ===== 3663	%RSD ===== 0.998	&
OCTACOSANE TRIACONTANE		2658 2591	2737 2734	2990 2973	3962 3812	3733 3414 ———	3216 3105	18.5 16.2	

RF's divided by 10000 '&' denotes LINEAR FIT. %RSD value is correlation of determination (r^2).

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# SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076

SDG No.: DF076

Instrument ID: GCF

ICAL Date(s): 07/06/05

Analyte Concentration:

	1=F070600 5=F070600		RRF0.5=F0706004.D RRF4 =F0706007.D				
COMPOUND RRF0.1 RRF0.5 RRF1 RRF2.5 RRF4 ===================================							
OCTACOSANE_ TRIACONTANE_	0.100	0.150 0.150	0.250 0.250	0.300	0.350 0.350		

# 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Instrument ID: GCF

ICAL Date(s): 07/06/05

LAB FILE ID: RRF1 =F0706005.D		L=F07060 5=F07060		RRF( RRF	0.5=F070 1 =F070	06004.D 06007.D		
COMPOUND ====================================	=====	RRF0.1 ===== 3490	RRF0.5 ===== 2999	RRF1 ===== 3054	RRF2.5 ===== 3051	RRF4 ====== 3072	RRF ====== 3133	%RSD ===== 6.4
OCTACOSANE TRIACONTANE		3025 3090	3175 3225	3074 3118	3284 3333	3157 3202	3143 3193	3.2 3.0

### 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Instrument ID: GCG

ICAL Date(s): 07/06/05

Analyte Concentration:

<del></del>				RRF0.5=G0706004.D RRF4 =G0706007.D			
COMPOUND RRF0.1 RRF0.5 RRF1 RRF2.5 RRF4 ===================================							
OCTACOSANE_ TRIACONTANE_	0.100 0.100	0.150 0.150	0.250 0.250	0.300 0.300	0.350 0.350		

# 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

Instrument ID: GCG

ICAL Date(s): 07/06/05

LAB FILE ID: RRF1 =G0706005.D	L=G07060 5=G07060		RRF( RRF4	0.5=G070 1 =G070	06004.D 06007.D		
COMPOUND ====================================	 RRF0.1 ===== 4070	RRF0.5 ===== 3024	RRF1 ===== 3384	RRF2.5 ===== 2977	RRF4 ===== 3422	RRF ===== 3375	%RSD ===== 13.0
OCTACOSANE TRIACONTANE	2594 2702	2680 2815	3037 3098	3267 3189	3716 3661	3059 3093	14.9 12.1

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0629017

CCV Date/Time:

06/29/05

2039

ICAL Date/Time (1st pt): 06/29/05

1718

ICAL Date/Time (Last pt): 06/29/05

1958

COMPOUND	SAMPLE AMOUNT	CALO.5 AMOUNT	CURVE	%D	MAX %Dft
TPH-DIESEL (C10-C24)	0.48536	0.50000	LINR	-2.9	15.0
OCTACOSANE TRIACONTANE	0.13224 0.13732	0.15000 0.15000	AVG AVG	-11.8 -8.4	15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0630002

CCV Date/Time:

06/30/05

1119

ICAL Date/Time (1st pt): 06/29/05

1718

ICAL Date/Time (Last pt): 06/29/05

1958

COMPOUND	SAMPLE AMOUNT	CAL1 AMOUNT	CURVE	%D	MAX %Dft
TPH-DIESEL (C10-C24)	1.0003	1.0000	LINR	0.0	15.0
OCTACOSANE TRIACONTANE	0.24265 0.24696	0.25000	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0630013

CCV Date/Time:

06/30/05

1840

ICAL Date/Time (1st pt): 06/29/05

1718

ICAL Date/Time (Last pt): 06/29/05

1958

COMPOUND	SAMPLE AMOUNT	CAL2.5 AMOUNT	CURVE	%D	MAX %Dft	
TPH-DIESEL (C10-C24)	2.8415	2.5000	LINR	13.6	15.0	
OCTACOSANE TRIACONTANE	0.41057 0.41179	0.30000	AVG AVG		15.0 15.0	

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Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0630024

CCV Date/Time:

07/01/05

0159

ICAL Date/Time (1st pt): 06/29/05

1718

ICAL Date/Time (Last pt): 06/29/05

1958

COMPOUND	SAMPLE AMOUNT	CAL1 AMOUNT	CURVE	%D	MAX %Dft
TPH-DIESEL (C10-C24)	1.0272	1.0000	LINR	2.7	15.0
OCTACOSANE TRIACONTANE	0.24462 0.25740	0.25000 0.25000	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF076

SDG No.: DF076

Lab File ID: F0706008

CCV Date/Time:

07/06/05

1625

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	3136	AVG	0.1	15.0
OCTACOSANE TRIACONTANE	3143 3193	3309 3360	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0706008

CCV Date/Time:

07/06/05

1625

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3127	AVG	-7.4	15.0
OCTACOSANE TRIACONTANE	3059 3093	2906 3011	AVG AVG	1	15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF076

SDG No.: DF076

Lab File ID: F0706020

CCV Date/Time:

07/07/05

0022

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	2994	AVG	-4.4	15.0
OCTACOSANE TRIACONTANE	3143 3193	3197 3280	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0707002

CCV Date/Time:

07/07/05

1041

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3036	AVG	-10.0	15.0
OCTACOSANE TRIACONTANE	3059 3093	2751 2852	AVG AVG	-10.0 -7.8	15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF076

SDG No.: DF076

Lab File ID: G0707010

CCV Date/Time:

07/07/05

1600

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3025	AVG	-10.4	15.0
OCTACOSANE TRIACONTANE	3059 3093	3351 3279	AVG AVG		15.0 15.0

#### 8D SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 06/29/05 06/29/05

Instrument ID: GCG

1	CLIENT	LAB	DATE	TIME
ļ	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
1	=========	=========	========	=======
01	DSTD1	DSTD1	06/29/05	1718
02	DSTD2	DSTD2	06/29/05	1758
03	DSTD3	DSTD3	06/29/05	1838
04	DSTD4	DSTD4	06/29/05	1918
05	DSTD5	DSTD5	06/29/05	1958
06	QCALTSTD2	QCALTSTD2	06/29/05	2039
07	DSTD3	DSTD3	06/30/05	1119
08	DBS10610	DBS10610	06/30/05	1159
09	DBS10610LCS	DBS10610LCS	06/30/05	1239
10	P13SCSB0902F	DF076002	06/30/05	1319
11	P13SCSB0905F	DF076003	06/30/05	1359
12	P13SCSB0910F	DF076004	06/30/05	1439
13	P13SCSB1002F	DF076006	06/30/05	1519
14	P13SCSB1005F	DF076007	06/30/05	1559
15	P13SCSB1010F	DF076008	06/30/05	1639
16	P13SCSB1102F	DF076010	06/30/05	1719
17	DSTD4	DSTD4	06/30/05	1840
18	P13SCSB1200F	DF076011	06/30/05	1919
19	P13SCSB1205F	DF076012	06/30/05	2000
20	P13SCSB1210F	DF076013	06/30/05	2040
21	P13SCSB1300F	DF076014	06/30/05	2120
22	P13SCSB1305F	DF076015	06/30/05	2201
23	P13SCSB1310F	DF076016	06/30/05	2240
24	DSTD3	DSTD3	07/01/05	0159
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#### 8D SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 07/06/05 07/06/05

Instrument ID: GCF

- 1	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
	==========	========	========	=======
01	DSTD1	DSTD1	07/06/05	1301
02	DSTD2	DSTD2	07/06/05	1341
03	DSTD3	DSTD3	07/06/05	1421
04	DSTD4	DSTD4	07/06/05	1501
05	DSTD5	DSTD5	07/06/05	1541
06	QCALTSTD	QCALTSTD	07/06/05	1625
07	P13SCSB0810F	DF076020	07/06/05	1745
80	P13SCSB0810FMS	DF076020MS	07/06/05	1825
09	P13SCSB0810FMSD	DF076020MSD	07/06/05	1905
10	P13SCSB0900F P13SCSB1000F	DF076001 DF076005	07/06/05 07/06/05	1945 2025
11 12	P13SCSB1000F P13SCSB1100F	DF076005	07/06/05	2105
13	P13SCSB1100F P13SCSB0800F	DF076003	07/06/05	2144
14	- · ·	DF076017	07/06/05	2303
15	DSTD3	DSTD3	07/07/05	0022
16	כעו פען	DSIDS	07/07/03	0022
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# SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF076 SDG No.: DF076

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 07/06/05 07/06/05

Instrument ID: GCG

-	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
	==========	========	========	========
01	DSTD1	DSTD1	07/06/05	1301
02	DSTD2	DSTD2	07/06/05	1341
03	DSTD3	DSTD3	07/06/05	1421
04	DSTD4	DSTD4	07/06/05	1501
05	DSTD5	DSTD5	07/06/05	1541
06	QCALTSTD	QCALTSTD	07/06/05	1625
07	DSTD3	DSTD3	07/07/05	1041
80	P13SCSB0802F	DF076018	07/07/05	1121
09	DSTD4	DSTD4	07/07/05	1600
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# **AMENDMENT REPORT**

Client: MACTEC INC.

Project: MACTEC/CAMP PARKS

Date: 8/9/2005

Batch: DF077

Tier: 3

Dept: CL SERV

E-Data: NOT REQUIRED

Initiated By: Douglas Burnett

Completed By: Douglas Burnett

Approved By: Douglas Burnett

REASON: Client Request

1. Amend case narrative to include comment about soil samples received in plastic sleeves rather than glass or metal

2. Amend case narrative to include comment on why Silica Gel cleanup was not performed.

3. Supply Chromatograms

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project: MACTEC

Camp Parks

Service Request No.:
Date Received:

DF077 6/4/05

Sample Matrix:

Soil/Water

#### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

One water sample and five soil samples were received for analysis at Columbia Analytical Services on 6/4/05. The following discrepancy was noted upon initial sample inspection:

• Soil samples were received in plastic sleeves rather than glass or metal. Per instruction from the project manager on 6/6/05, proceed with analysis.

The samples were received in good condition and otherwise consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

#### Continuing Calibration Verification Exceptions:

The lower control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G062014 (6/22/05 02:47): Octacosane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected. No further corrective action was required.

#### **Elevated Method Reporting Limits:**

Sample P13SCSB1105F required dilution due to the presence of elevated levels of Diesel Range Organics. The reporting limits are adjusted to reflect the dilution.

#### General Discussion and Notes:

Silica gel cleanup was not performed during preparation of these samples as requested in the QAPP. Samples were received into the laboratory on 6/4/05, prepared on 6/14/05; QAPP was received by CAS on 6/14/05.

Approved by: _	Laws	<del> </del>	Date:	8-5-05
		7		



David Browne
MACTEC Inc.
5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954

Columbia Analytical Services Report Camp Parks Dublin DF050077/DF077 37868

July 12, 2005

Submitted by:

Douglas Burnett

Project Manager/Client Services

The test results provided in this data package meet the requirements of the NELAC Standards unless noted in the case narrative report.

## TABLE OF CONTENTS

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### **Current CAS Redding Accreditation Programs**

#### Federal and National Programs

• U.S Air Force, Air Force Center for Environmental Excellence (AFCEE)
Approved laboratory for Wastewater and Hazardous Waste

• U.S. Army Corps of Engineers – MRD, HTRW Mandatory Center of Expertise Validated for Wastewater and Hazardous Waste

Department of the Navy, Naval Facilities Engineering Service Center (NFESC)
 Approved laboratory for Wastewater and Hazardous Waste

#### State and Local Programs

State of Arizona, Department of Health Services
 Approved laboratory for Hazardous Waste
 Lab ID# AZ0604

• State of Arkansas, Department of Environmental Quality

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# None

 State of California, Department of Health Services, National Environmental Laboratory Accreditation Program (NELAP)

Approved laboratory for Drinking Water, Wastewater and Hazardous Waste Lab ID# 01105CA

• Los Angeles County Sanitation District

Approved laboratory for Wastewater

Lab ID# 10243

• State of Florida, Department of Health (NELAP)

Approved Environmental Testing Laboratory for Wastewater and Hazardous Waste Lab ID# E87203

• State of Kansas, Department of Health and Environment (NELAP)

Approved laboratory for Hazardous Waste

Lab ID# E-10323

• State of Massachusetts, Department of Environmental Protection

Approved laboratory for Drinking Water, Wastewater Lab ID# M-CA025

• State of Oklahoma, Department of Environmental Quality

Approved laboratory for General Water Quality/Sludge Testing Lab ID# 9952

• State of Oregon, Department of Human Resources, Health Division (ORELAP)

Approved laboratory for Drinking Water, Wastewater, and Hazardous Waste Lab ID# CA200004

• State of Utah, Department of Health, Division of Laboratory Services (NELAP)

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# QUAL1

State of Washington, Department of Ecology, Environmental Laboratory Accreditation Program
 Approved laboratory for Wastewater and Hazardous Waste
 Lab ID# C037

• State of Wisconsin, Department of Ecology

Approved laboratory for Wastewater and Hazardous Waste Lab ID# 999767340

#### Organic Data Qualifiers

- A -- This qualifier indicates that a TIC is a suspected aldol-condensation product
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.
- C The "C" flag indicates the presence of this compound has been confirmed by the GC/MS analysis.
- This qualifier is used for all the compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.
- E This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at the appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.
- I -- The qualifier indicates that the reporting limit to the "I" qualifier has been raised. It is used when the chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.
- J Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).
- N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for Tentatively Identified Compounds (TIC), where the identification is based on a mass spectral library research. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.
- P This qualifier is used for target analytes when there is a greater than 40% difference for detected concentrations between the two columns or detectors. The concentration value is reported on Form I and flagged with a "P".
- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

### Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analysis are defined below:

- DL Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. A digit to indicate multiple dilutions of the sample or extract may follow the "DL" suffix. The results of more than one diluted reanalysis may be reported.
- MS Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- MSD Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- R Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalysis of the sample at the same dilution.
- RE Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analysis of the same sample at the same dilution.

#### Sample ID Cross-reference Table

CAS Lab Sample	1D	Client Receive Sample ID Date	Collect Date Sample Matrix Additional Description
FS = Field	Samp	le; MS = Matrix Spike;	MSD = Matrix Spike Duplicate; NON = Non-Sample Type (Internal Admin)
DF077001	FS	P13SCSB1105F 06/04/05	06/03/05 14:45 Soil
DF077002	FS	P13SCSB1110F 06/04/05	06/03/05 14:50 Soil
DF077003		P13SCSB0700F 06/04/05	
DF077004	FS	P13SCSB0705F 06/04/05	06/03/05 15:10 Soil
DF077005	FS	P13SCSB0710F 06/04/05	
DF077006	FS	P13SCSB0700R 06/04/05	06/03/05 15:40 Water

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

# CASE NARRATIVE

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

Sample Matrix:

MACTEC

Project: Camp Parks

Soil/Water

Service Request No.:

DF077

Date Received:

6/4/05

#### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

One water sample and five soil samples were received for analysis at Columbia Analytical Services on 6/4/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

#### **Continuing Calibration Verification Exceptions:**

The lower control criterion was exceeded for the following analytes in Continuing Calibration Verification (CCV) G062014 (6/22/05 02:47): Octacosane. The surrogate recoveries in all of the field samples as well as the blank and LCS analyzed in this sequence met acceptance criteria. Therefore, the data quality is not affected. No further corrective action was required.

#### **Elevated Method Reporting Limits:**

Sample P13SCSB1105F required dilution due to the presence of elevated levels of Diesel Range Organics. The reporting limits are adjusted to reflect the dilution.

Approved by

Date: 7-12-05

# CHAIN OF CUSTODY DOCUMENTATION



5250 ( 48 5341 Old Redwood Highway Suite 300 Petaluma, CA 94954 (707) 793-3800

CHAIN OF CUSTODY I-URM

Seq. No.: Nº 1114

Samplers: David Browne / Scott Tucker

Lab: Columbia

Job Number:		36	20, 20, 1816,08		<u> </u>		DFO76	3 0/3
Name/Location	on:	Co	mp fack Dus	blin			DF-077 /	l of l
Project Mana	iger:	Ber	r Flynn R	Lecorder: Davidsonn (Signature Required)			ANALYSIS REQUI	ESTED
MATRIX	CONTAINERS & PRESERV.	YR PI PI PI	35<500700F	0506031450 0506031500 0506031510		XXXXXX		23 24 25 4
	<u>-lll</u>	A[	DDITIONAL INFORMATION	<u>#</u>				
SAM	PLE NUMBER				CHAIN	OF CUSTO	DY RECORD	-
YR SEQ TURNAROUND		TIME/ REMARKS	Relinquished By (Signature) (Pr	int Name)				
			STANDARD -	TP1	David Frame Da	vid Brow	(Company)  MACTEE	Date/Tim
					Received By (Signature) P. BINS	int Name)	(Company) 6/3/05	1630 Date/Tim
						RINS (	(Company),	Date/Tin
						KINS (		1715
					( Cas	SANCH	(Company)	Date/Tim
						Name)	(Company)	Date/Tim
				/, /M	Received By (Signature) (Print I	Vame)	. (Company)	Date/Tin

E1008-B (5/04)

Laboratory Copy

Project Office Copy

Field or Office Copy

Method of Shipment:



5090 Caterpillar Road Redding, CA 96003 Phone: (530) 244-5262

Fax #: (530) 244-4109

#### COOLER RECEIPT FORM

Project	Client: MAC 75C CAMY PACKS Batch No.:	DF	977	
1.	Cooler(s)/Sample(s) received on: 6/4/05 Shipped via:	Fx		·
	Shipping Bill # (s): DF875 # of Coolers/P:	ackages	/	
2.	Radiological Screening by:	table	Rejecte	ed
3.	Custody seals on outside of cooler:  If yes, where? Front Rear Lt Side Rt Side /	FES	NO	N/A
	Seals intact:	YES	NO	
	COOLER/SAMPLE PROCESSING			
4.	Sample Processing/Tagging by:			
5.	Cooler(s)/Sample(s) Temp's:	<u>.</u>	· · · · · · · · · · · · · · · · · · ·	
	(or) Temp. Blank (if included):			
6.	Type of packing material (circle): Ice Blue Ice Rubble Wrap Bubble Bags Zin	Locks	Webbin	g
	Other:	•		
<b>7.</b>	Custody papers properly filled out (ink, signed, dated, released, etc.)?	YES	NO	•
8.	Containers arrived in good condition (not broken, leaking, etc.)?	XES )	NO	
9.	Samples received with adequate holding time remaining to conduct analysis?	XES)	NO	
10.	Container labels complete (i.e. analysis, preservation, date/time, etc.)?	(YES)	NO .	
11.	Container labels and tags agree with custody papers?		NO	<b>)</b>
12.	Correct types of containers used for the tests indicated?	YIS	NO	)
	a.) Adequate sample received? If not, note on Exception Report.	MES	) NO	
13.	Containers supplied by:	CAS	Other	
14.	Preserved containers received with the appropriate preservative?	YES	NO	NA)
٠	pH: (or) See pH log.	•		
15.	VOA vials free of air bubbles?	YES	NO	MA
16.	Trip Blank preparation date:	CAS	Other	MA
17.	Volatile Soil samples: Encores or Plugs in Vials			/
1	Freezer or GC/MS Date:	Time:		NIA

See Exception Report for discrepancies.



5090 Caterpillar Road Redding, Ca. 96004

Phone: 530-244-5227 Fax: 530-244-4110

# SAMPLE RECEIPT EXCEPTION REPORT Client/Project: Sample Batch #: Other COC/Label Issues Container Issues Temperature Issues **Holding Time Issues** ALL SOIL SIMPLES PECZIUES IN PLASTIC CONTAINERS DRGAMICS REQUIRE GLASS OR METHL Corrective Actions Taken OK. Project as escheduled. Client: Initiated By: Date: 6/4/23 Client Notification By: Date: \_\_\_\_\_

# GC TPH DIESEL

Sample data

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

P13SCSB1105F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Lab Sample ID:

DF077001

Matrix:

SOIL

Lab File ID:

F0706009

Sample Wt/Vol: 50.0 G

Level:

LOW

Date Collected: 06/03/05

Extract Vol:

Date Extracted: 06/14/05

1 ML

% Moisture: not dec. 23

Date Analyzed: 07/06/05

Extraction Type: SONICATION

Dilution Factor: 2.0

CAS NO. COMPOUND Units: mg/Kg MDL RLRESULT Q PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_ 1.6 26 150

FORM I SV-1

SW846 SW8015

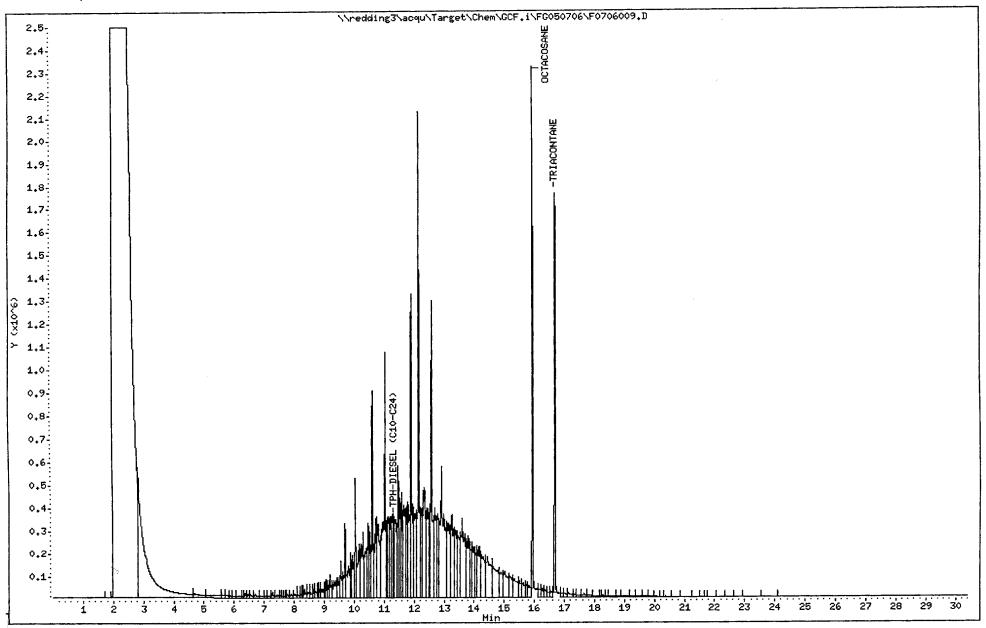
Data File: \\redding3\acqu\Target\C\

Date : 06-JUL-2005 17:05 Client ID: P13SCSB1105F Sample Info: DF077001

Instrument: GCF.i

Operator:

Column phase: RTX-5



CLIENT ID.

P13SCSB1110F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

Lab Sample ID:

DF077002

Matrix:

SOIL

Level:

Lab File ID:

G0626010

Sample Wt/Vol: 50.1 G

LOW

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/14/05

% Moisture: not dec. 22

Date Analyzed: 06/26/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLCOMPOUND RESULT Q CAS NO. PHCC10C24---TPH-DIESEL (C10-C24) 0.81 13 13 U

SW846 SW8015

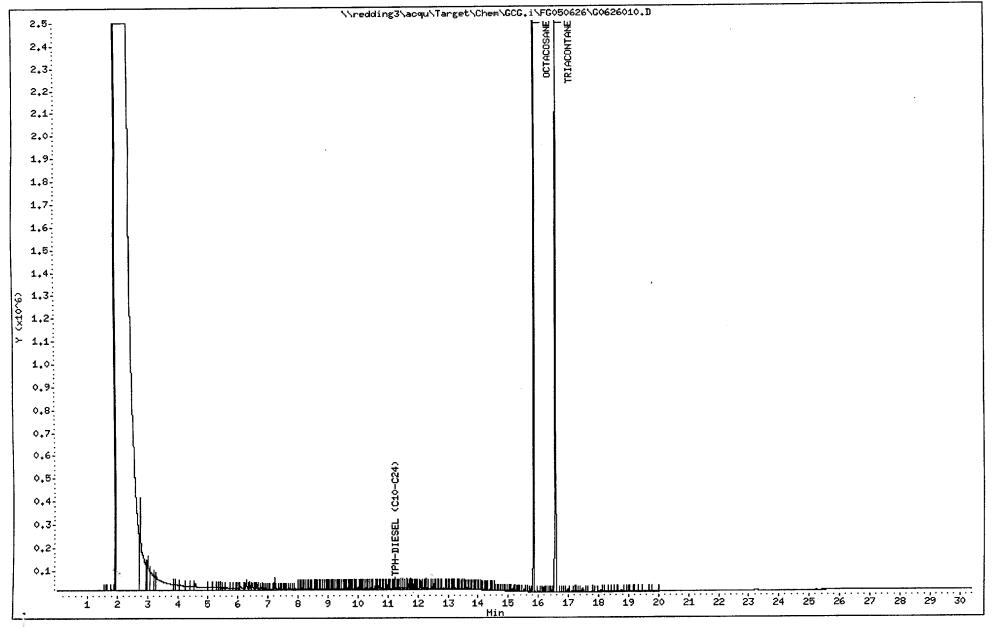
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050626\G0626010.D

Date : 26-JUN-2005 17:16 Client ID: P13SCSB1110F Sample Info: DF077002

Instrument: GCG.i

Operator:





CLIENT ID.

P13SCSB0700F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

Lab Sample ID: DF077003

Matrix: SOIL

LOW

Lab File ID:

Level:

G0626011

Sample Wt/Vol: 50.5 G

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/14/05

% Moisture: not dec. 12

Date Analyzed: 06/26/05

Extraction Type: SONICATION

Dilution Factor: 1.0

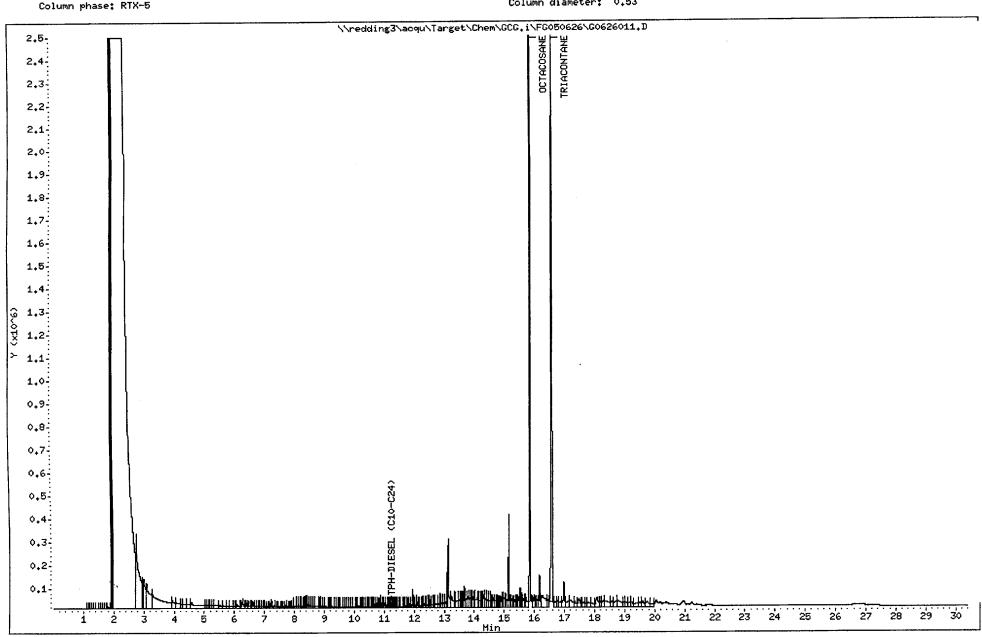
CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL	(C10-C24)	0.72	11	3.7	J

Data File: \\redding3\acqu\Target\Cht

Date : 26-JUN-2005 17:56 Client ID: P13SCSB0700F Sample Info: DF077003

Instrument: GCG.i

Operator:



LOW

CLIENT ID.

P13SCSB0705F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

Lab Sample ID:

DF077004

Matrix: SOIL Level:

G0626012

Sample Wt/Vol: 50.6 G

Lab File ID:

Date Collected: 06/03/05

Extract Vol:

1 ML

Date Extracted: 06/14/05

% Moisture: not dec. 25

Date Analyzed: 06/26/05

Extraction Type: SONICATION

Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT COMPOUND CAS NO. Q PHCC10C24---TPH-DIESEL (C10-C24)\_\_ 0.84 13 U 13

FORM I SV-1

SW846 SW8015

1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET CLIENT ID.

P13SCSB0710F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

DF077005

Case No.: DF077 SDG No.: DF077 Lab Sample ID:

Lab File ID: Matrix: SOIL Level: G0626013 LOW

Sample Wt/Vol: 49.9 G Date Collected: 06/03/05

Date Extracted: 06/14/05 Extract Vol: 1 ML

Date Analyzed: 06/26/05 % Moisture: not dec. 18

Extraction Type: SONICATION Dilution Factor: 1.0

Units: mg/Kg MDL RLRESULT CAS NO. COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_ 0.77 12 12

FORM I SV-1

SW846 SW8015

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050626\G0626013.D

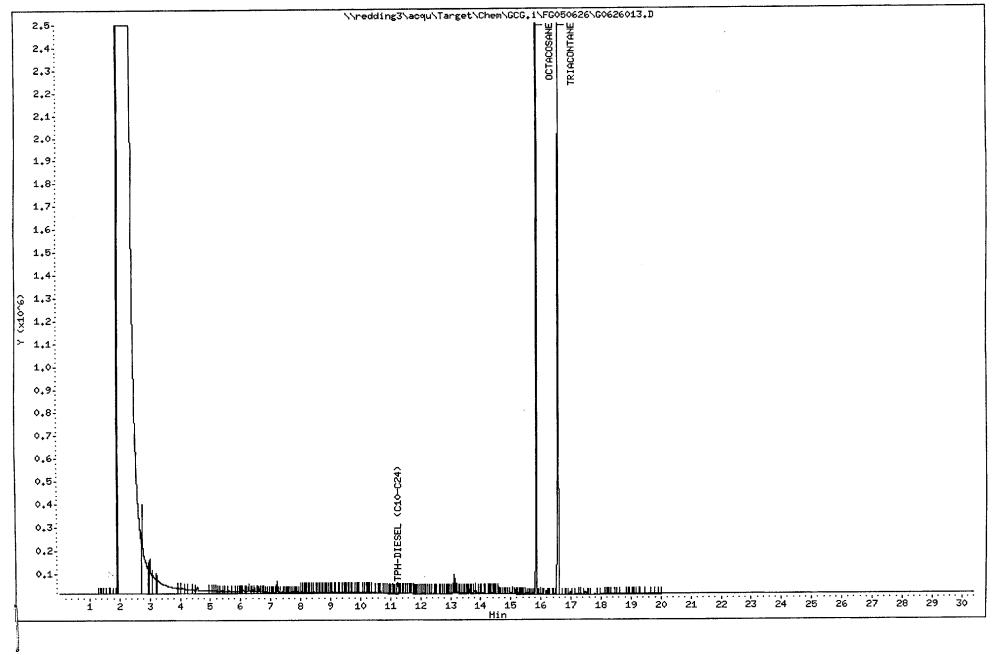
Bate : 26-JUN-2005 19:15
Client ID: P13SCSB0710F
Sample Info: DF077005

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET CLIENT ID.

P13SCSB0700R

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077 La

Lab Sample ID: DF077006

Matrix: WATER Level: LOW Lab File ID: G0621008

Sample Wt/Vol: 1.030 L Date Collected: 06/03/05

Extract Vol: 1 ML Date Extracted: 06/09/05

Date Analyzed: 06/21/05

Extraction Type: SEP FUNNEL Dilution Factor: 1.0

CAS NO. COMPOUND Units: mg/L MDL RL RESULT Q

PHCC10C24---TPH-DIESEL (C10-C24) 0.018 0.10 0.073 J

FORM I SV-1

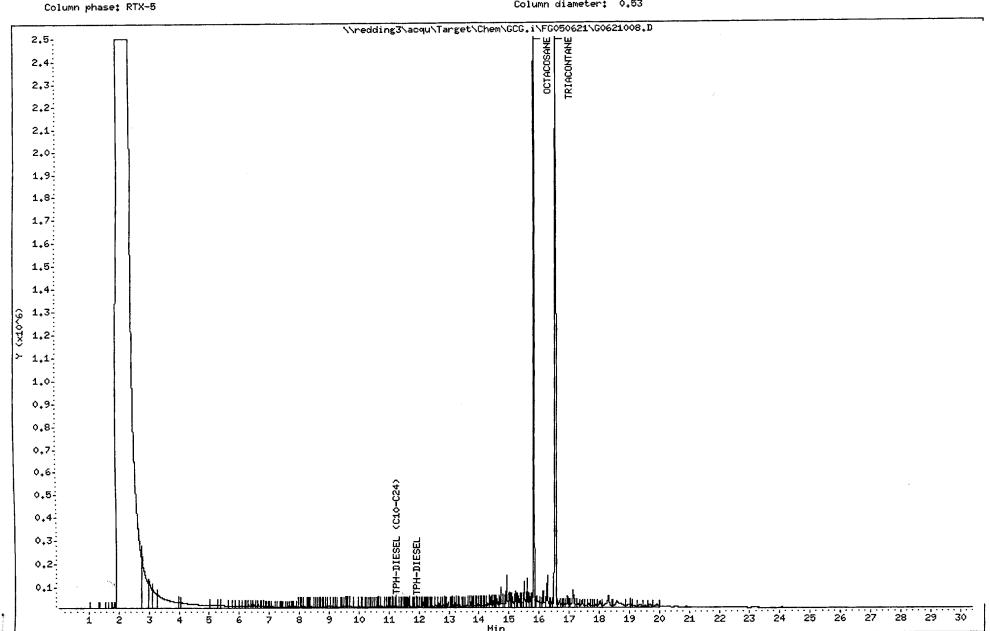
SW846 SW8015

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050621\G0621008.D

Date : 21-JUN-2005 22:49 Client ID: P13SCSB0700R Sample Info: DF077006 Purge Volume: 1.◊

Instrument: GCG.i

Operator:



**QC** Summary

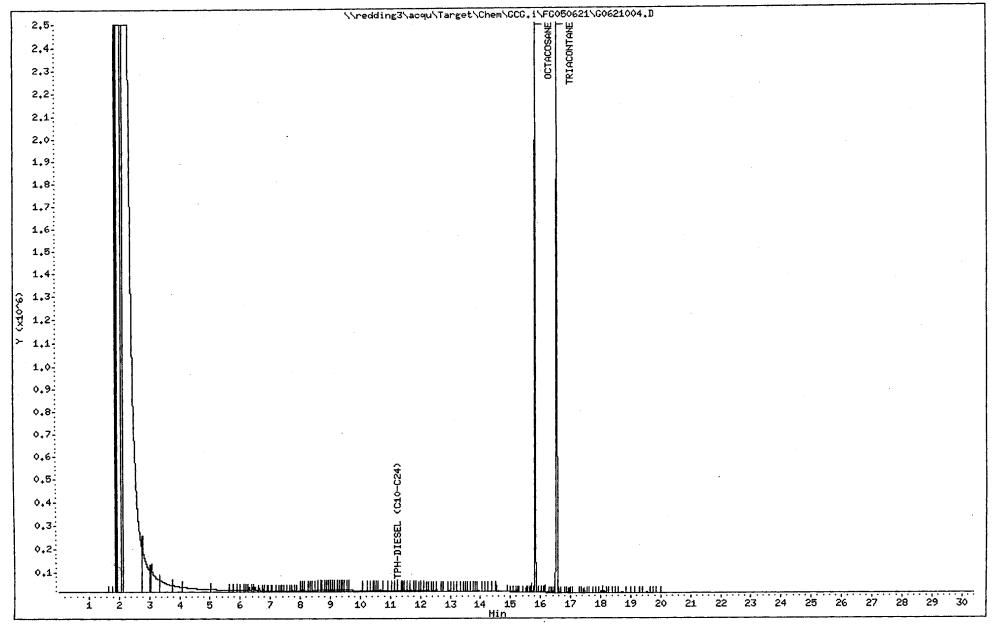
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050621\G0621004.D

Date : 21-JUN-2005 20:10 Client ID: DWB20609

Sample Info: DWB20609

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCG.i

Operator:

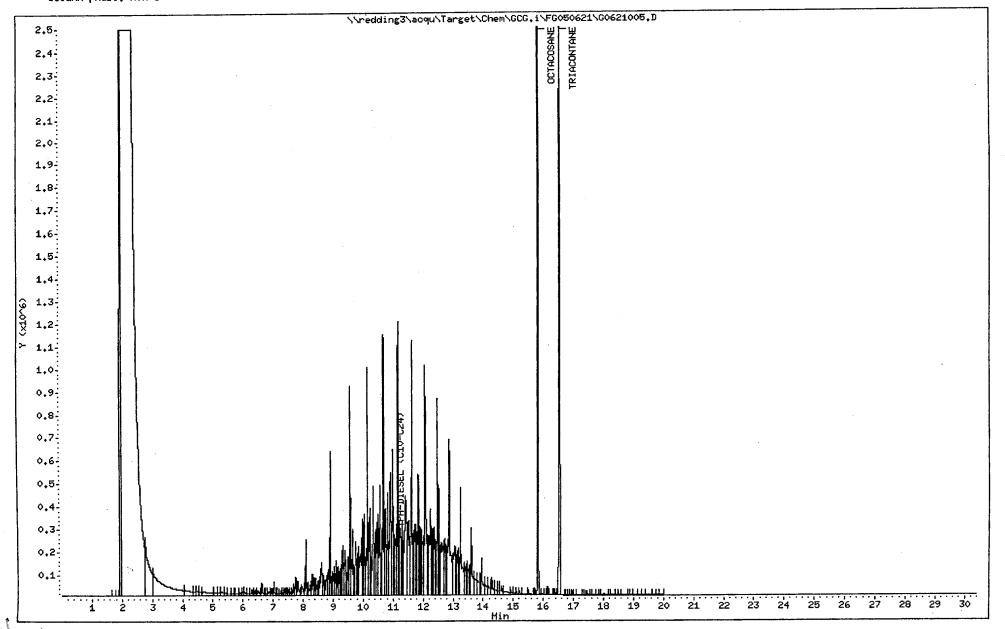


Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050621\G0621005.D

Date: 21-JUN-2005 20:50 Client ID: DWB20609LCS Sample Info: DWB20609LCS

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCG.i

Operator:

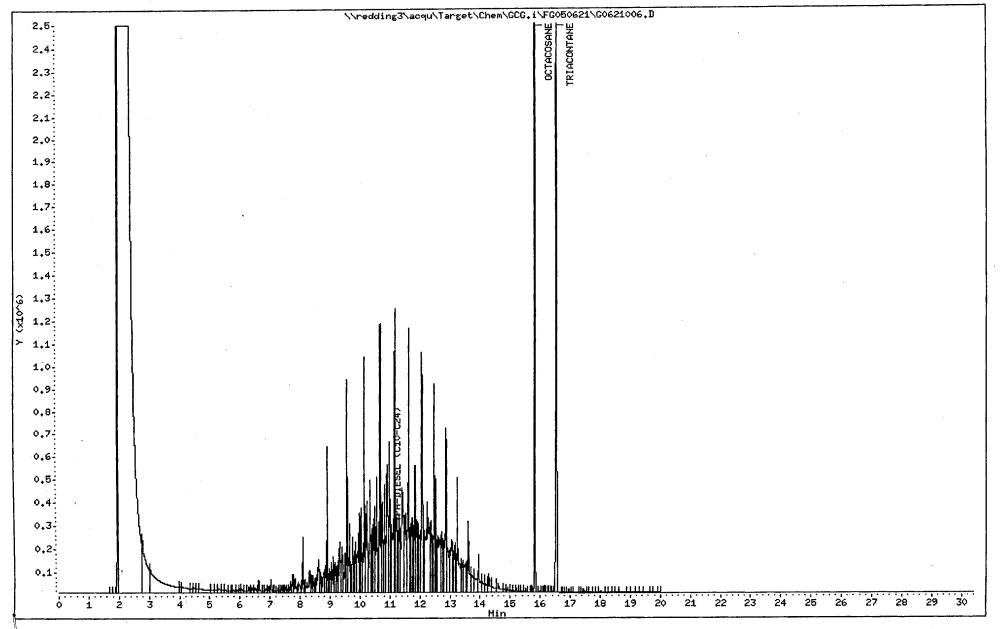


Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050621\G0621006.D

Date : 21-JUN-2005 21:30 Client ID: DWB20609LCSD Sample Info: DWB20609LCSD

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCG.i

Operator:



Data File: \\redding3\acqu\Target\Che

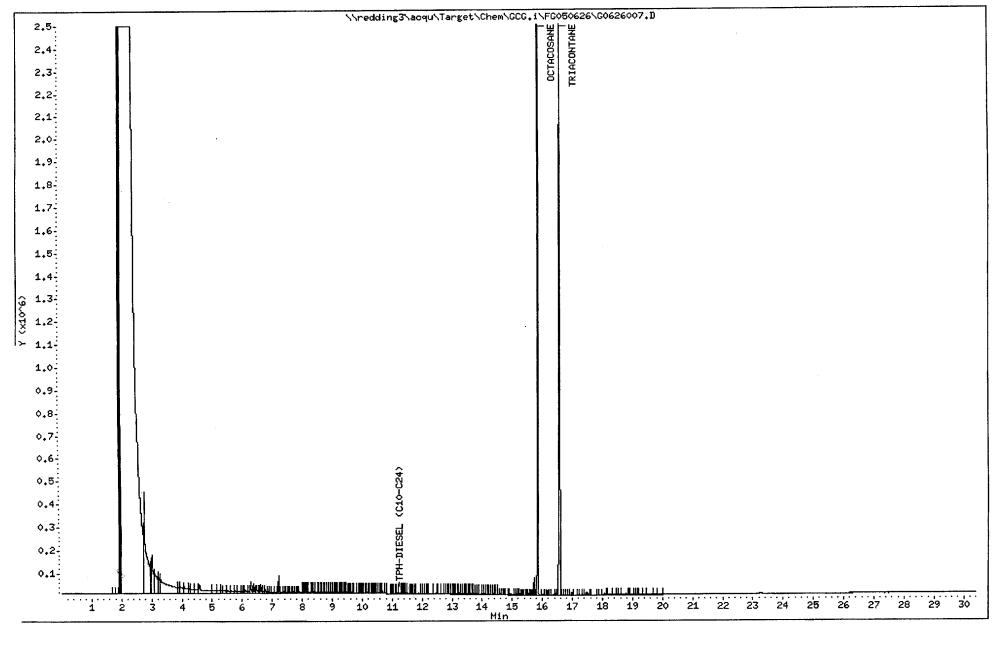
Date: 26-JUN-2005 15:17 Client ID: DSB10614 Sample Info: DSB10614

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



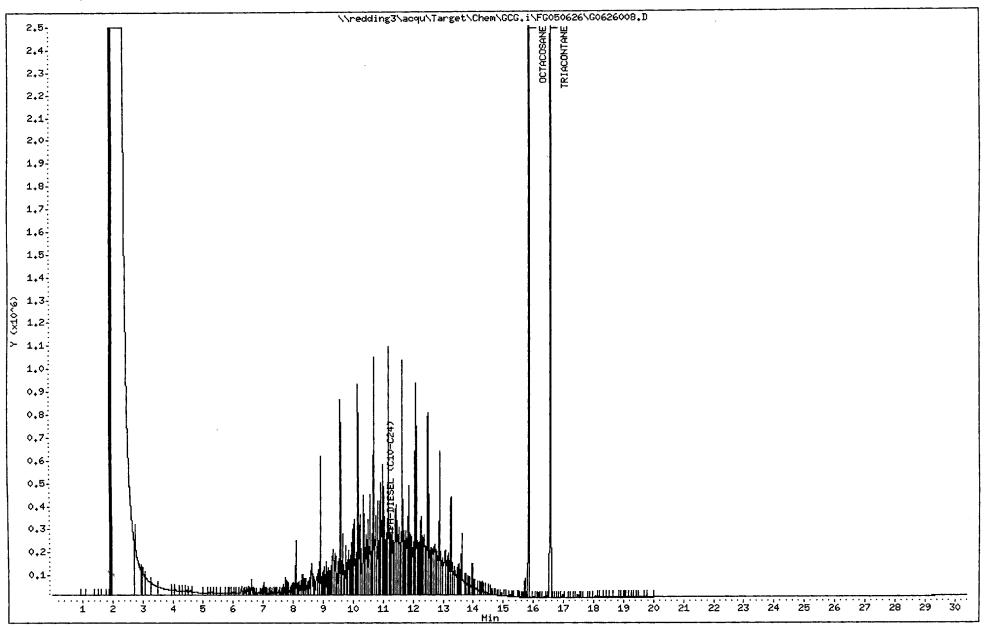
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050626\G0626008.D

Date : 26-JUN-2005 15:57 Client ID: DSB10614LCS Sample Info: DSB10614LCS

Instrument: GCG.i

Operator:

Column phase: RTX-5

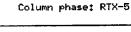


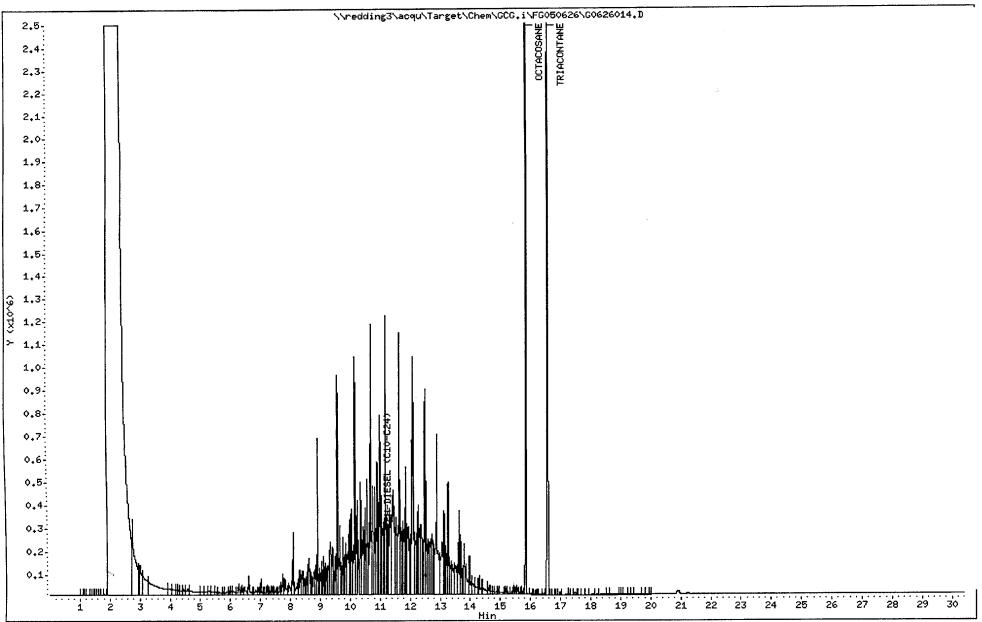
Data File: \\redding3\acqu\Target\Che '000 "F00F000" 0000"

Date: 26-JUN-2005 19:55 Client ID: P13SCSB0710FMS Sample Info: DF077005MS

Instrument: GCG.i

Operator:





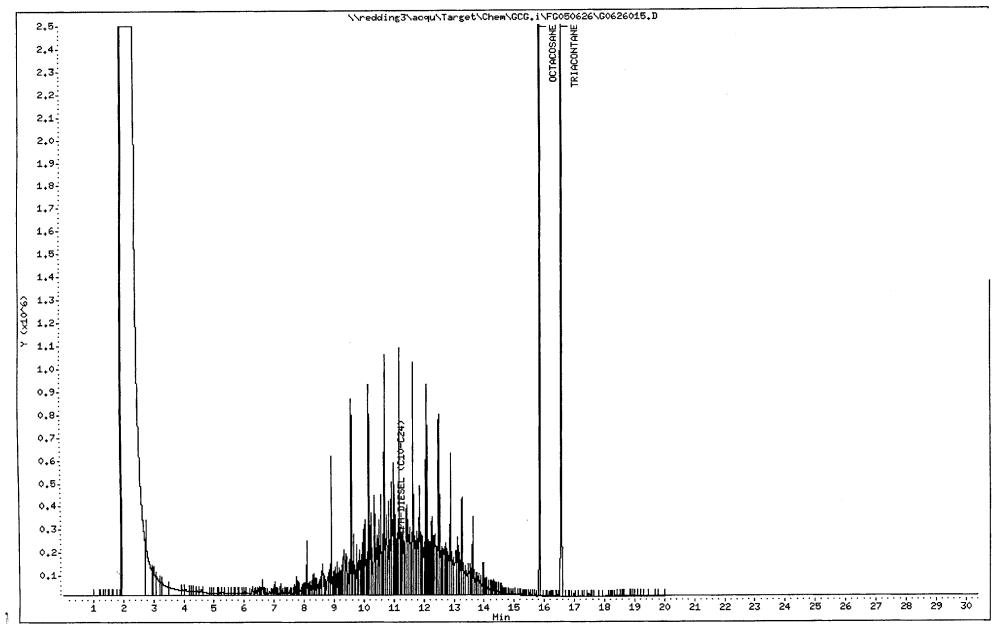
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050626\G0626015.D

Date : 26-JUN-2005 20:35 Client ID: P13SCSB0710FMSD Sample Info: DF077005MSD

Instrument: GCC.i

Operator:





SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Lab Sample ID: DSB10614

Matrix: SOIL Level:

Lab File ID:

DSB10614

G0626007

Sample Wt/Vol: 50.1 G

Case No.: DF077 SDG No.: DF077

Date Collected:

Date Extracted: 06/14/05

1 ML Extract Vol:

Date Analyzed: 06/26/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. Units: mg/Kg MDL RLRESULT COMPOUND Q PHCC10C24---TPH-DIESEL (C10-C24)\_\_\_\_ 0.63 10 10 U SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

LOW

CLIENT ID.

DWB20609

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Lab Sample ID:

DWB20609

Matrix: WATER Level:

Lab File ID:

G0621004

Sample Wt/Vol: 1.000 L

Date Collected:

Extract Vol:

1 ML

Date Extracted: 06/09/05

Date Analyzed: 06/21/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

CAS NO. COMPOUND Units: mg/L MDL RLRESULT Q PHCC10C24---TPH-DIESEL (C10-C24) 0.018 0.10 0.10 U

#### 2C SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Level:

LOW

ı			S1	S2	S3	TOT
	LAB ID	CLIENT ID.	(OCT)#	(TRI)#		OUT
			======	======	=====	===
01	DSB10614	DSB10614	70	78		0
02	DSB10614 DSB10614LCS	DSB10614 DSB10614LCS	73	81	<del></del>	ŏ
02	DF077002	P13SCSB1110F	66	79		ő
04	DF077002	P13SCSB1110F P13SCSB0700F	75	84		Ö
05	DF077003	P13SCSB0700F	63	68		Ö
06	DF077004 DF077005	P13SCSB0703F	66	80		ŏ
07	DF077005MS	P13SCSB0710FMS	82	89		ŏ
08	DF077005MSD	P13SCSB0710FMSD	70	78		ő
08	DF077001	P13SCSB0710FNSD	88	87		0
10	DEOTTOOL	FISSCSBIIOSE	00	87		ا ۱
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QC LIMITS (56-110)S1 (OCT) = OCTACOSANE S2 (TRI) = TRIACONTANE (52-107)

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits
D Surrogates diluted out

### WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

			S1	S2	S3	TOT
	LAB ID	CLIENT ID.	(OCT)#	(TRI)#	55	OUT
	THYD ID	CHIENT ID.	(001)#	(1771)#		===
01	DWB20609	DWB20609	64	68	=====	0
01		DWB20609 DWB20609LCS	79	77		Ö
02	DWB20609LCS		80	77 79		Ö
03	DWB20609LCSD	DWB20609LCSD P13SCSB0700R	84	94		
04	DF077006	PI3SCSBU/UUR	04	94		١
05						
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QC LIMITS S1 (OCT) = OCTACOSANE (58-111)S2 (TRI) = TRIACONTANE (54-109)

page 1 of 1

FORM II SV-1

SW846

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits
D Surrogates diluted out

Page 3

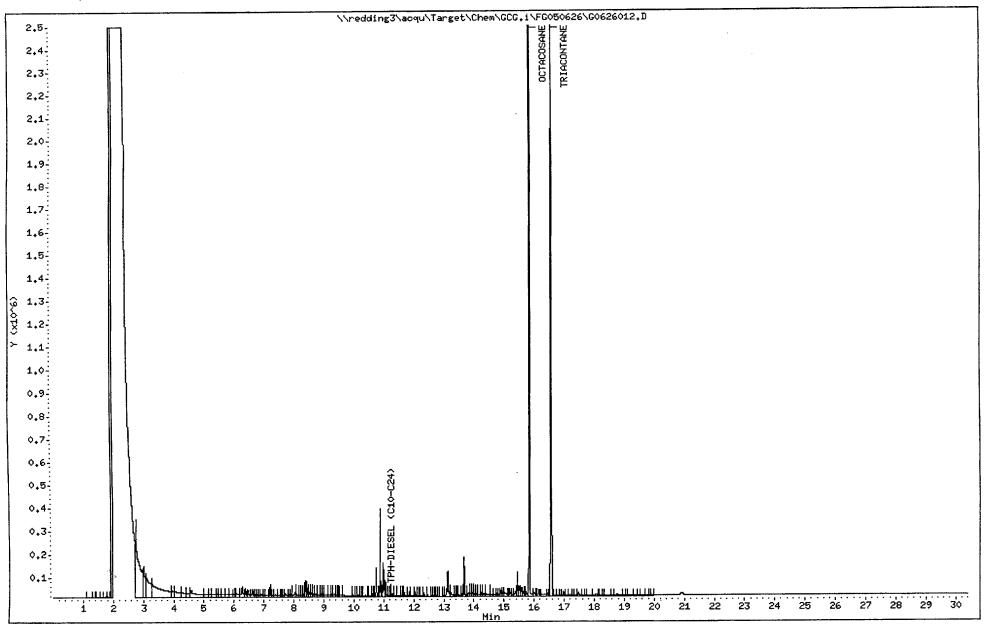
Date : 26-JUN-2005 18:36 Client ID: P13SCSB0705F Sample Info: DF077004

Instrument: GCG.i

Operator:

Column diameter: 0.53

Column phase: RTX-5



### SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Matrix Spike - Sample No.: P13SCSB0710F Level: LOW

COMPOUND	SPIKE	SAMPLE	MS	MS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	60.576	0.00000	51.007	84	65-135

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #	QC LI RPD	MITS REC.
TPH-DIESEL (C10-C24)	60.480	43.418	72	16	30	65-135

 $\sharp$  Column to be used to flag recovery and RPD values with an asterisk  $\star$  Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

#### 3D SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

LCS -

Sample No.: DSB10614

Level: LOW

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	49.910	N/A	35.273	71	65-135

RPD: 0 out of 0 outside limits Spike Recovery: 0 out of 1 outside limits

<sup>#</sup> Column to be used to flag recovery and RPD values with an asterisk
\* Values outside of QC limits

#### 3C WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

LCS -

Sample No.: DWB20609

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/L)	(mg/L)	(mg/L)	REC #	REC.
TPH-DIESEL (C10-C24)	2.5000	N/A	1.9675	79	65-135

COMPOUND	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC #	% RPD #	QC L:	IMITS REC.
TPH-DIESEL (C10-C24)	2.5000	2.0394	82	4	20	65-135

# Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

### SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DSB10614

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

Lab File ID: G0626007

Lab Sample ID: DSB10614

Date Extracted: 06/14/05

Extraction Type: SONICATION

Date Analyzed: 06/26/05

Time Analyzed:

1517

Matrix:

SOIL

Level: (low/med)

LOW

Instrument ID:

GCG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

		LAB	LAB	DATE
	CLIENT ID.	SAMPLE ID	FILE ID	ANALYZED
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 20 21		SAMPLE ID ====================================	FILE ID ====================================	ANALYZED  ========  06/26/05  06/26/05  06/26/05  06/26/05  06/26/05  06/26/05  07/06/05
22 23				

### SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DWB20609

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Lab File ID: G0621004

Lab Sample ID: DWB20609

Date Extracted: 06/09/05

Extraction Type: SEP FUNNEL

Date Analyzed: 06/21/05

Time Analyzed:

2010

Matrix:

WATER

Level: (low/med)

LOW

Instrument ID:

GCG

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01 02 03 04 05	DWB20609LCS DWB20609LCSD P13SCSB0700R	DWB20609LCS DWB20609LCSD DF077006	G0621005 G0621006 G0621008	06/21/05 06/21/05 06/21/05
06				
07 08				
09 10				
11 12				
13				
14 15				
16 17				
18				
19 20				
21 22				
23				

Standards data

# SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Instrument ID: GCG

ICAL Date(s): 06/17/05

Analyte Concentration:

— — — — — — — — — — — — — — — — — — —	1=G061700 5=G061700			30617006 30617012	
COMPOUND ====================================	RRF0.1 ====== 0.100	RRF0.5 ====== 0.500	RRF1 ====== 1.000	RRF2.5 ====== 2.500	RRF4 ====== 4.000
OCTACOSANE TRIACONTANE	0.100	0.150 0.150	0.250 0.250	0.300	0.350 0.350

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

Instrument ID: GCG

ICAL Date(s): 06/17/05

LAB FILE ID: RRF1 =G0617007.D		L=G06170 5=G06170		RRF( RRF4	).5=G061 1 =G061	L7006.D L7012.D		
COMPOUND ====================================	=====	RRF0.1 ===== 7268	RRF0.5 ===== 6453	RRF1 ===== 7159	RRF2.5 ===== 7052	RRF4 ===== 6855	RRF ===== 6957	%RSD ===== 4.6
OCTACOSANE TRIACONTANE		5767 5618	5764 5949	6790 6827	7129 6644 ———	7712 7182	6632 6444	12.9 10.0

RF's divided by 100000

page 1 of 1

FORM VI SV-1

SW846

## SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Instrument ID: GCF

ICAL Date(s): 07/06/05

Analyte Concentration:

	=F070600 =F070600		RRF0.5=F0706004.D RRF4 =F0706007.D			
COMPOUND	RRF0.1	RRF0.5	RRF1	RRF2.5	RRF4	
TPH-DIESEL (C10-C24)	 0.100	0.500	1.000	2.500	4.000	
OCTACOSANE TRIACONTANE	0.100 0.100	0.150 0.150	0.250 0.250	0.300 0.300	0.350 0.350	

#### SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077

SDG No.: DF077

Instrument ID: GCF

ICAL Date(s): 07/06/05

<del></del>	RRF0.1=F0706003.D RRF2.5=F0706006.D			RRF0.5=F0706004.D RRF4 =F0706007.D				
COMPOUND	R	RF0.1	RRF0.5	RRF1	RRF2.5	RRF4	RRF	%RSD
TPH-DIESEL (C10-C24)	3	490	2999	3054	3051	3072	3133	6.4
OCTACOSANE TRIACONTANE		025 090	3175 3225	3074 3118	3284 3333	3157 3202	3143 3193	3.2

RF's divided by 10000

page 1 of 1

FORM VI SV-1

SW846

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF077

SDG No.: DF077

Lab File ID: G0617015 CCV Date/Time:

06/17/05

2026

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957	6747	AVG	-3.0	15.0
OCTACOSANE TRIACONTANE	6632 6444	6793 6938	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF077 SDG No.: DF077

1931

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957 ======= 6632	7224 ===================================	AVG ======= AVG	9.0	15.0 ==== 15.0
TRIACONTANE	6444	6563	AVG	1.8	15.0 

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF077

SDG No.: DF077

0247

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D	
TPH-DIESEL (C10-C24)	6957	6996	AVG	0.6	15.0	
OCTACOSANE TRIACONTANE	6632 6444	5599 5728	AVG AVG	-15.6 -11.1		

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF077

SDG No.: DF077

1438

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957	6544	AVG	-5.9	15.0
OCTACOSANE TRIACONTANE	6632 6444	7397 7272	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.: DF077

SDG No.: DF077

Lab File ID: G0626018 CCV Date/Time:

06/26/05

2234

ICAL Date/Time (1st pt): 06/17/05

1350

ICAL Date/Time (Last pt): 06/17/05

1827

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	6957	6659	AVG	-4.3	15.0
OCTACOSANE TRIACONTANE	6632 6444	7524 7388	AVG AVG	13.4 14.6	15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF077

SDG No.: DF077

Lab File ID: F0706008

CCV Date/Time:

07/06/05

1625

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	3136	AVG	0.1	15.0
OCTACOSANE TRIACONTANE	3143 3193	3309 3360	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.: DF077

SDG No.: DF077

Lab File ID: F0706020

CCV Date/Time:

07/07/05

0022

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	2994	AVG	-4.4	15.0
OCTACOSANE TRIACONTANE	3143 3193	3197 3280	AVG AVG		15.0 15.0

### SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 06/17/05 06/17/05

Instrument ID: GCG

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
	=======================================		=========	========
01	DSTD 0.1	DSTD1	06/17/05	1350
02	DSTD 0.5	DSTD2	06/17/05	1430
03	DSTD 1.0	DSTD3	06/17/05	1509
04	DSTD 2.5	DSTD4	06/17/05	1549
05	DSTD 4.0	DSTD5	06/17/05	1827
06	QCALSTD 1.0	QCALTSTD	06/17/05	2026
07	DSTD 2.5 MG/ML	DSTD4	06/21/05	1931
08	DWB20609	DWB20609	06/21/05	2010
09	DWB20609LCS	DWB20609LCS	06/21/05	2050
10	DWB20609LCSD	DWB20609LCSD	06/21/05	2130 2249
	P13SCSB0700R	DF077006 DSTD3	06/21/05 06/22/05	0247
12 13	DSTD 1.0 MG/ML	DSTD3 DSTD4	06/22/05	1438
13	DSTD4 DSB10614	DS1D4 DSB10614	06/26/05	1517
15	DSB10614 DSB10614LCS	DSB10614 DSB10614LCS	06/26/05	1557
16	P13SCSB1110F	DF077002	06/26/05	1716
17	P13SCSB1110F P13SCSB0700F	DF077002	06/26/05	1756
18	P13SCSB0705F	DF077004	06/26/05	1836
19	P13SCSB0709F	DF077005	06/26/05	1915
20	P13SCSB0710FMS	DF077005MS	06/26/05	1955
21	P13SCSB0710FMSD	DF077005MSD	06/26/05	2035
22	DSTD4	DSTD4	06/26/05	2234
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### SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: DF077 SDG No.: DF077

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 07/06/05 07/06/05

Instrument ID: GCF

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
0.4	======================================	======================================	==== <b>===</b> ====	1301
01 02	DSTD1 DSTD2	DSTD1 DSTD2	07/06/05 07/06/05	1301
02	DSTD2 DSTD3	DSTD3	07/06/05	1421
04	DSTD4	DSTD4	07/06/05 07/06/05 07/06/05	1501
05	DSTD5	DSTD5	07/06/05	1541
06	QCALTSTD	QCALTSTD	07/06/05	1625
07	P13SCSB1105F	DF077001	07/06/05	1705
80	DSTD3	DSTD3	07/07/05	0022
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### **AMENDMENT REPORT**

Client: MACTEC INC.

Project: MACTEC/CAMP PARKS

Date: 8/9/2005

Batch: DF094

Tier: 3

Dept: CL SERV

E-Data: NOT REQUIRED

Initiated By: Douglas Burnett

Completed By: Douglas Burnett

Approved By: Douglas Burnett

REASON: Client Request

1. Amend case narrative to include comment about soil samples received in plastic sleeves rather than glass or metal

2. Amend case narrative to include comment on why Silica Gel cleanup was not performed.

3. Supply Chromatograms

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project:

Sample Matrix:

MACTEC

Camp Parks Soil/Water Service Request No.:

DF094 6/8/05

Date Received:

#### **CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

Eleven water samples and two soil samples were received for analysis at Columbia Analytical Services on 6/8/05. The following discrepancy was noted upon initial sample inspection:

- Soil samples were received in plastic sleeves rather than glass or metal. Per instruction from the project manager on 6/6/05, proceed with analysis.
- One container was received unlabeled. This container was not used for analysis.

The samples were received in good condition and otherwise consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

#### **Elevated Method Reporting Limits:**

Samples P13SCGW13F, P13SCGW13D, P13SCGW10F, P13SCGW11F, and P13SCGW14F required a dilution due to the presence of elevated levels of Diesel Range Organics and/or the nature of the matrix. The reporting limits are adjusted to reflect the dilution.

#### Surrogate Exceptions:

The control criteria for the following surrogates in samples P13SCGW1111F and P13SCGW13F are not applicable: Triacontane and Octacosane. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the Method Reporting Limit (MRL).

#### General Discussion and Notes:

In order to have consistent preparation techniques through the life of the project, silica gel cleanup was not performed during preparation of these samples as requested in the QAPP. Samples were received into the laboratory on 6/8/05, then prepared on 6/21/05; QAPP was received by CAS on 6/14/05.

Approved by:	Laux	311	Date: _	85-05

 $\sim \sim \sim 11$ 

David Browne
MACTEC Inc.
5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954

Redding, California 96003

Columbia Analytical Services Report Camp Parks Dublin DF050094/DF094 37868

July 11, 2005

Karax 1241

Submitted

Douglas Burnett Project Manager/Client Services

The test results provided in this data package meet the requirements of the NELAC Standards unless noted in the case narrative report.

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### **Current CAS Redding Accreditation Programs**

### Federal and National Programs

- U.S Air Force, Air Force Center for Environmental Excellence (AFCEE)
  Approved laboratory for Wastewater and Hazardous Waste
- U.S. Army Corps of Engineers MRD, HTRW Mandatory Center of Expertise
   Validated for Wastewater and Hazardous Waste
- Department of the Navy, Naval Facilities Engineering Service Center (NFESC)
   Approved laboratory for Wastewater and Hazardous Waste

### State and Local Programs

• State of Arizona, Department of Health Services

Approved laboratory for Hazardous Waste Lab ID# AZ0604

State of Arkansas, Department of Environmental Quality

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# None

 State of California, Department of Health Services, National Environmental Laboratory Accreditation Program (NELAP)

Approved laboratory for Drinking Water, Wastewater and Hazardous Waste Lab ID# 01105CA

• Los Angeles County Sanitation District

Approved laboratory for Wastewater

Lab ID# 10243

• State of Florida, Department of Health (NELAP)

Approved Environmental Testing Laboratory for Wastewater and Hazardous Waste Lab ID# E87203

• State of Kansas, Department of Health and Environment (NELAP)

Approved laboratory for Hazardous Waste

Lab ID# E-10323

• State of Massachusetts, Department of Environmental Protection

Approved laboratory for Drinking Water, Wastewater

Lab ID# M-CA025

• State of Oklahoma, Department of Environmental Quality

Approved laboratory for General Water Quality/Sludge Testing Lab ID# 9952

• State of Oregon, Department of Human Resources, Health Division (ORELAP)

Approved laboratory for Drinking Water, Wastewater, and Hazardous Waste Lab ID# CA200004

• State of Utah, Department of Health, Division of Laboratory Services (NELAP)

Approved laboratory for Wastewater and Hazardous Waste

Lab ID# OUAL1

- State of Washington, Department of Ecology, Environmental Laboratory Accreditation Program
   Approved laboratory for Wastewater and Hazardous Waste
   Lab ID# C037
- State of Wisconsin, Department of Ecology

Approved laboratory for Wastewater and Hazardous Waste Lab ID# 999767340

### Organic Data Qualifiers

- A This qualifier indicates that a TIC is a suspected aldol-condensation product
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.
- C The "C" flag indicates the presence of this compound has been confirmed by the GC/MS analysis.
- This qualifier is used for all the compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.
- E This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at the appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.
- I The qualifier indicates that the reporting limit to the "I" qualifier has been raised. It is used when the chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.
- J Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).
- N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for Tentatively Identified Compounds (TIC), where the identification is based on a mass spectral library research. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.
- P This qualifier is used for target analytes when there is a greater than 40% difference for detected concentrations between the two columns or detectors. The concentration value is reported on Form I and flagged with a "P".
- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

### Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analysis are defined below:

- DL Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. A digit to indicate multiple dilutions of the sample or extract may follow the "DL" suffix. The results of more than one diluted reanalysis may be reported.
- MS -- Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- MSD Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).
- R Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalysis of the sample at the same dilution.
- RE Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analysis of the same sample at the same dilution.

Sample ID Cross-reference Table

CAS Lab Sample	ID	Client Sample ID	Receive Date	llect te Sample Mat	trix Additional Description
FS = Field	Samp	le; MS = Matr	ix Spike;	) = Matrix Spike Duplica	ate; NON = Non-Sample Type (Internal Admin)
DF094001	FS	P13SCGW01F	06/08/05	/06/05 16:20 Water	
DF094002	FS	P13SCGW13F	06/08/05	/07/05 08:00 Water	
DF094003	FS	P13SCGW13D	06/08/05	/07/05 08:00 Water	
DF094004	FS	P13SCGW10F	06/08/05	/07/05 08:45 Water	
DF094005	FS	P13SCGW11F	06/08/05	/07/05 09:35 Water	
DF094006	FS	P13SCGW12F	06/08/05	/07/05 10:05 Water	
DF094007	FS	P13SCGW15F	06/08/05	/07/05 10:55 Water	
DF094008	FS	P13SCGW14F	06/08/05	/07/05 13:15 Water	
DF094009	FS	P13SCGW1408F	06/08/05	/07/05 13:25 Soil	
DF094010	FS	P13SCGW16F	06/08/05	/07/05 13:40 Water	
DF094011	FS	P13SCGW07F	06/08/05	/07/05 15:10 Water	
DF094012	FS	P13SCGW1111F	06/08/05	/07/05 16:25 Soil	
DF094013	FS	P13SCGW1111R	06/08/05	/07/05 16:40 Water	

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

## CASE NARRATIVE

#### COLUMBIA ANALYTICAL SERVICES, INC.

Client:

MACTEC

Project:

Sample Matrix:

Camp Parks Soil/Water **Service Request No.:** 

DF094

Date Received:

6/8/05

#### CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables.

#### Sample Receipt

Eleven water samples and two soil samples were received for analysis at Columbia Analytical Services on 6/8/05. No discrepancies were noted upon initial sample inspection. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

#### Diesel Range Organics by EPA Method 8015B

### **Elevated Method Reporting Limits:**

Samples P13SCGW13F, P13SCGW13D, P13SCGW10F, P13SCGW11F, and P13SCGW14F required a dilution due to the presence of elevated levels of Diesel Range Organics and/or the nature of the matrix. The reporting limits are adjusted to reflect the dilution.

#### **Surrogate Exceptions:**

The control criteria for the following surrogates in samples P13SCGW1111F and P13SCGW13F are not applicable: Triacontane and Octacosane. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the Method Reporting Limit (MRL).

Approved by:

Date: 7-11-05

### CHAIN OF CUSTODY DOCUMENTATION



CHAIN OF CUSTODY FURM

Samplers: David Browne 500H Trollar

Seq. No.: Nº \_\_\_\_\_1115

8 9

Lab:	Columbry	
	DI-094	<u> </u>

Job Number:		361	804	1812	B,	20					<i></i>	071		
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CHAIN OF CUSTODY RECORD											
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(Print Name)	6/07/05 (Company) 1750 VIA	Pate/Time									
(Print Name)	(Company)	Date/Time									
(Print Name)	(Company)	Date/Time									
(Print Name)	(Company)	Date/Time									
	(Print Name)  Dow vd. 13v (Print Name)  (Print Name)  (Print Name)  (Print Name)  (Print Name)	(Print Name) (Company)  Dow of Byrowne MATEC (Company)  (Print Name) (Company)									

10 E1008\_R (5/04)

Laboratory Copy

Project Office Copy Yellow

Field or Office Copy Pink



52.50 (5) 5341 Old Redwood Highway Suite 300 Petaluma, CA 94954

CHAIN OF CUSTODY FURM

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Samplers: David Browne	Scott-Tucker
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Lab: Columbora

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F1008-B (5/04)

Laboratory Copy White Project Office Copy Yellow Field or Office Copy Pink



5090 Caterpillar Road Redding, CA 96003 Phone: (530) 244-5262

Fax #: (530) 244-4109

### COOLER RECEIPT FORM

Project	t/Client: MACTBE DUBLIN B	Batch No.:
1.	Cooler(s)/Sample(s) received on: <u>6/8/05</u>	Shipped via: <u>FX</u>
	Shipping Bill # (s): <u>8358 1545 172</u> #	of Coolers/Packages
2.	Radiological Screening by	Acceptable Rejected
3.	Custody seals on outside of cooler:  If yes, where? Front Rear Lt Side Rt Side	NO N/A
	Seals intact:	YES NO
4.	COOLER/SAMPLE PROCESSIN	IG
5.	Cooler(s)/Sample(s) Temp's: 3.0	
<b>J.</b>	(or) Temp. Blank (if included):	
6.	Type of packing material (circle): Ice Blue Ice Bubble Wrap Bubb	le Bags Zip Locks Webbing
	Other:	· .
7.	Custody papers properly filled out (ink, signed, dated, released, etc.)?	NO NO
8.	Containers arrived in good condition (not broken, leaking, etc.)?	YES NO
9.	Samples received with adequate holding time remaining to conduct analysis	? YES NO
10.	Container labels complete (i.e. analysis, preservation, date/time, etc.)?	VES NO
11.	Container labels and tags agree with custody papers?	YES NO
12.	Correct types of containers used for the tests indicated?	YES NO
	a.) Adequate sample received? If not, note on Exception Report.	(ES) NO
13.	Containers supplied by:	CAS Other
14.	Preserved containers received with the appropriate preservative?	YES NO (N/A)
	pH: (or) See pH log.	
15.	VOA vials free of air bubbles?	YES NO MA
16.	Trip Blank preparation date:	CAS Other MA
17.	Volatile Soil samples: Encores or Plugs in Vials	
- •	Freezer or GC/MS Date	:Time:

See Exception Report for discrepancies.

Rev. 8/18/2004/ds



5090 Caterpillar Road Redding, Ca. 96004

Phone: 530-244-5227 Fax: 530-244-4110

# An Employee-Owned Company SAMPLE RECEIPT EXCEPTION REPORT Sample Batch #: Client/Project: Container Issues Other Temperature Issues COC/Label Issues **Holding Time Issues** Corrective Actions Taken OK. 6905 Client: Initiated By: Client Notification By: Date:

# GC TPH DIESEL

Sample data

LOW

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW01F

Case No.:

SDG No.: DF094

Lab Sample ID:

DF094001

Matrix: WATER

Level:

Lab File ID:

F0706026

Sample Wt/Vol: 0.990 L

Date Collected: 06/06/05

Extract Vol: 1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/L	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.018	0.10	0.060	J

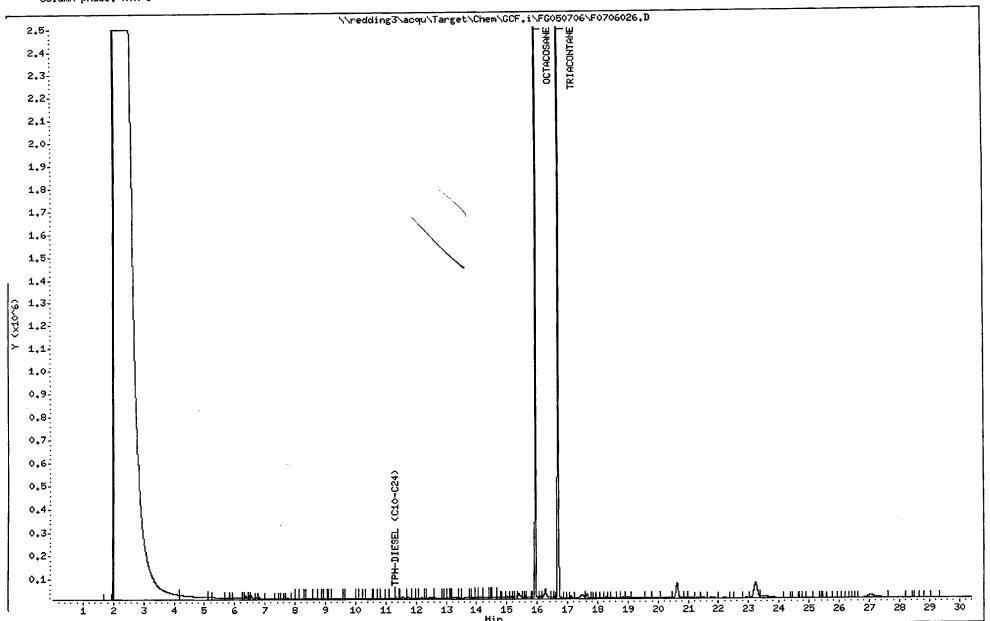
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050706\F0706026.D

Date : 07-JUL-2005 04:21 Client ID: P13SCGW01F Sample Info: DF094001

Purge Volume: 1.≎ Column phase: RTX-5 Instrument: GCF.i

Operator:

Column diameter: 0.53



CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW13F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094002

Matrix: WATER Level:

LOW

Lab File ID:

G0707009

Sample Wt/Vol: 1.050 L

Date Collected: 06/07/05

Extract Vol: 1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 200.0

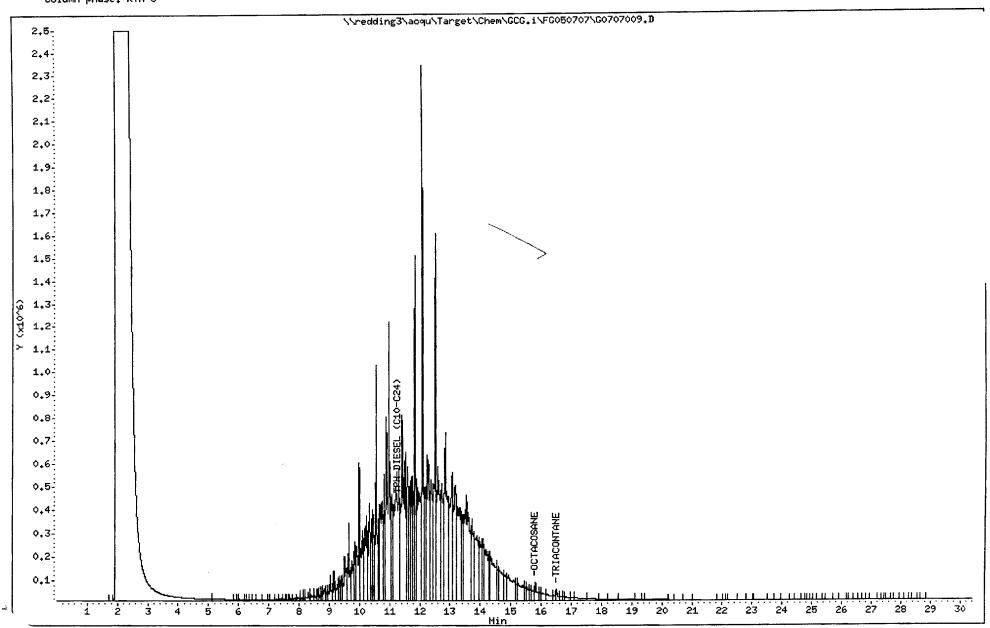
CAS NO.	COMPOUND	Units:	mg/L	MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL	(C10-C24)		3.6	19	650	

Data File: \\redding3\acq Date: 07-JUL-2005 15:20 Client ID: P13SCGW13F Sample Info: DF094002 Purge Volume: 1.1 Column phase: RTX-5

Instrument: GCG.i

Operator:

Column diameter: 0.53



SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW13D

Case No.:

SDG No.: DF094

Lab Sample ID: DF094003

Matrix: WATER

Lab File ID: G0707005

Level: LOW

Sample Wt/Vol: 0.990 L

Date Collected: 06/07/05

Extract Vol: 1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 5.0

CAS NO.	COMPOUND	Units:	mg/L	MDL	RL	RESULT	Q	
PHCC10C24-	TPH-DIESEL	(C10-C24)		0.091	0.50	15		

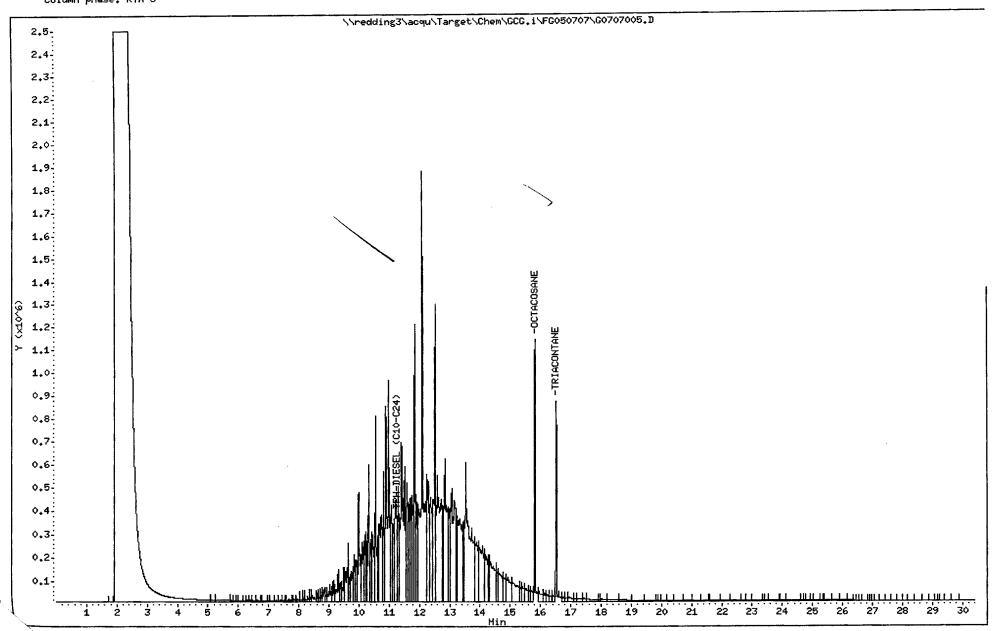
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050707\G0707005.D

Date: 07-JUL-2005 12:40 Client ID: P13SCGW13D Sample Info: DF094003 Purge Volume: 1.0 Column phase: RTX-5

Instrument: GCG.i

Operator:

Column diameter: 0.53



CLIENT ID.

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW10F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094004

Matrix: WATER Level:

LOW

Lab File ID:

G0707008

Sample Wt/Vol: 1.000 L

Date Collected: 06/07/05

Extract Vol: 1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 10.0

CAS NO.	COMPOUND	Units: mg/L	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL	(C10-C24)	0.18	1.0	27	

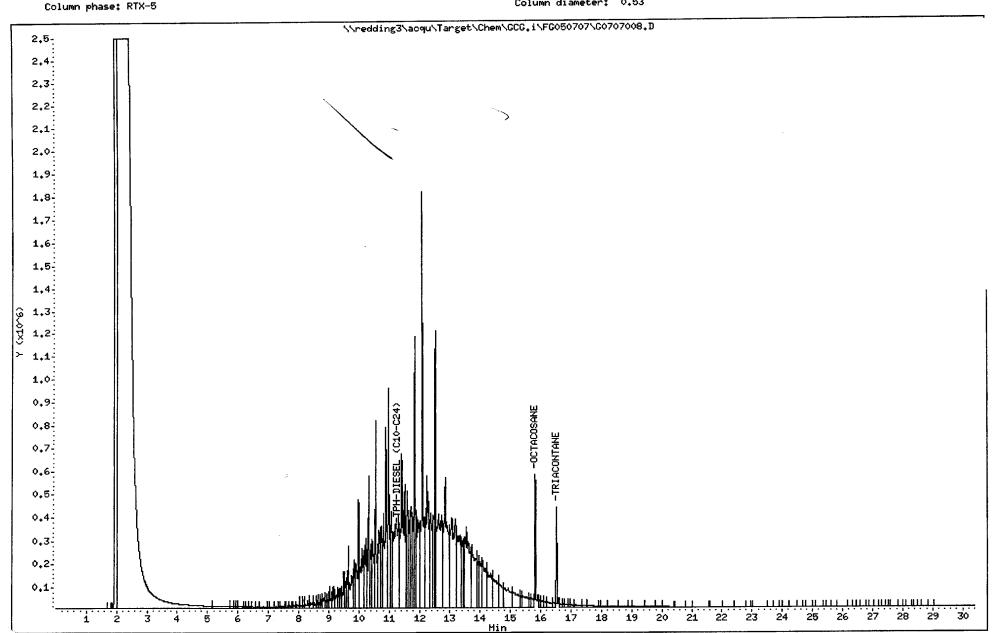
Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050707\G0707008.D

Date : 07-JUL-2005 14:40 Client ID: P13SCGW10F Sample Info: DF094004 Purge Volume: 1.0

Instrument: GCG.i

Operator:

Column diameter: 0.53



LOW

CLIENT ID.

P13SCGW11F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

SDG No.: DF094

Lab Sample ID: DF094005

Matrix: WATER

Case No.:

Level:

Lab File ID:

G0707007

Sample Wt/Vol: 1.020 L

Date Collected: 06/07/05

Extract Vol: 1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 10.0

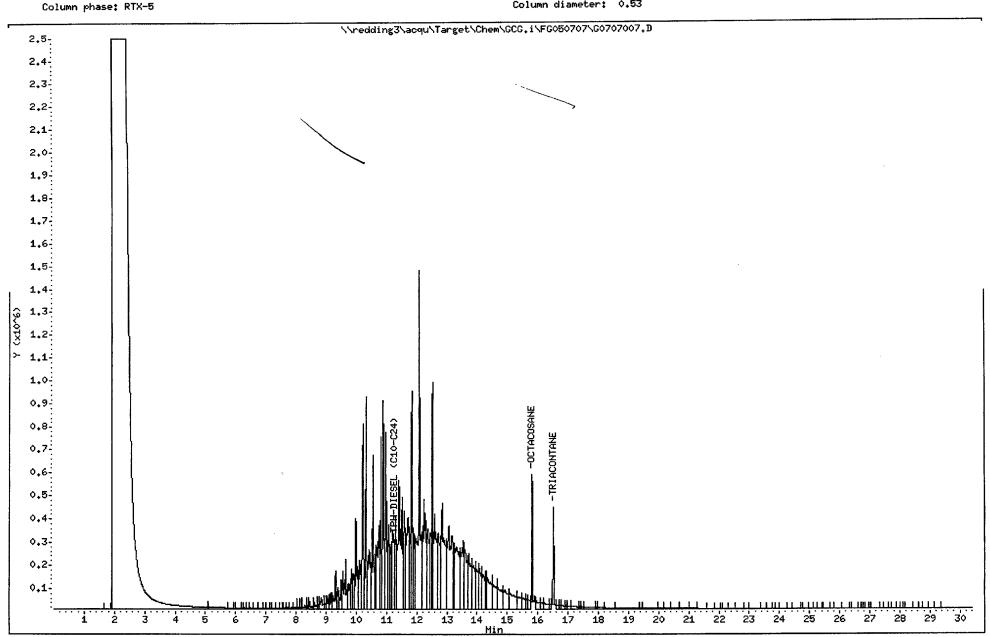
Units: mg/L MDLRLRESULT CAS NO. COMPOUND Q 0.18 0.98 24 PHCC10C24---TPH-DIESEL (C10-C24)

Data File: \\redding3\acq Date : 07-JUL-2005 14:00 Client ID: P13SCGW11F Sample Info: DF094005 Purge Volume: 1.◊

Instrument: GCG.i

Operator:

Column diameter: 0.53



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW12F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094006

Matrix: WATER

Level: LOW

Lab File ID:

Sample Wt/Vol: 1.000 L

G0706022

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed:

07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

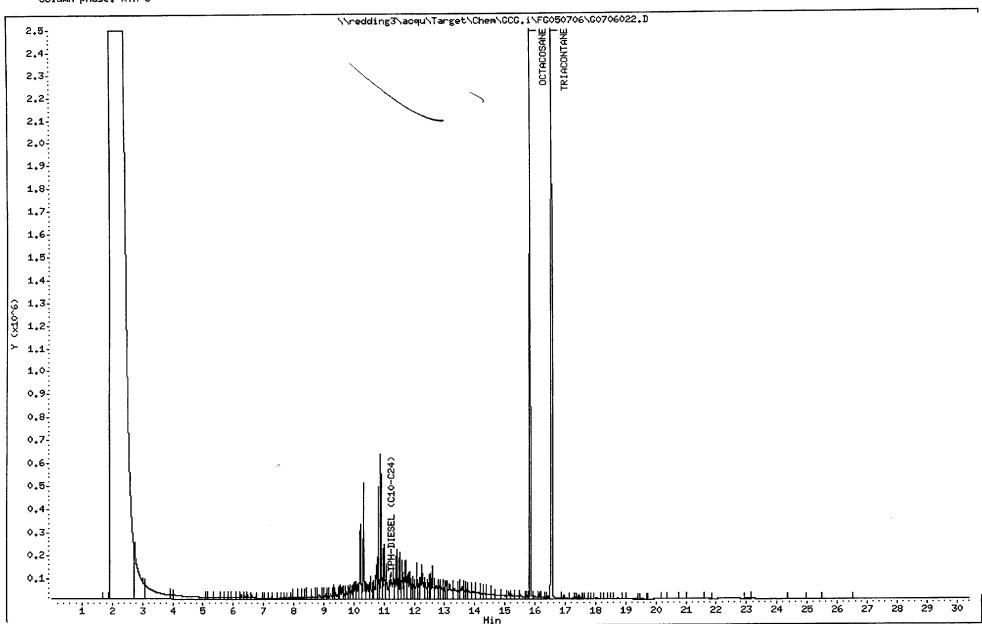
Units: mg/L MDL RLCAS NO. COMPOUND RESULT Q 0.018 0.10 0.55 PHCC10C24---TPH-DIESEL (C10-C24)

SW846 SW8015

Data File: \redding3\aco Date: 07-JUL-2005 01:42 Client ID: P13SCGW12F Sample Info: DF094006 Purge Volume: 1.0 Column phase: RTX-5

Instrument: GCG.i

Operator:



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW15F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094007

Matrix:

WATER

Level: LOW Lab File ID:

G0706023

Sample Wt/Vol: 1.030 L

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed:

07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

Units: mg/L MDL RLRESULT Q CAS NO. COMPOUND 0.10 PHCC10C24---TPH-DIESEL (C10-C24) 0.018 0.11

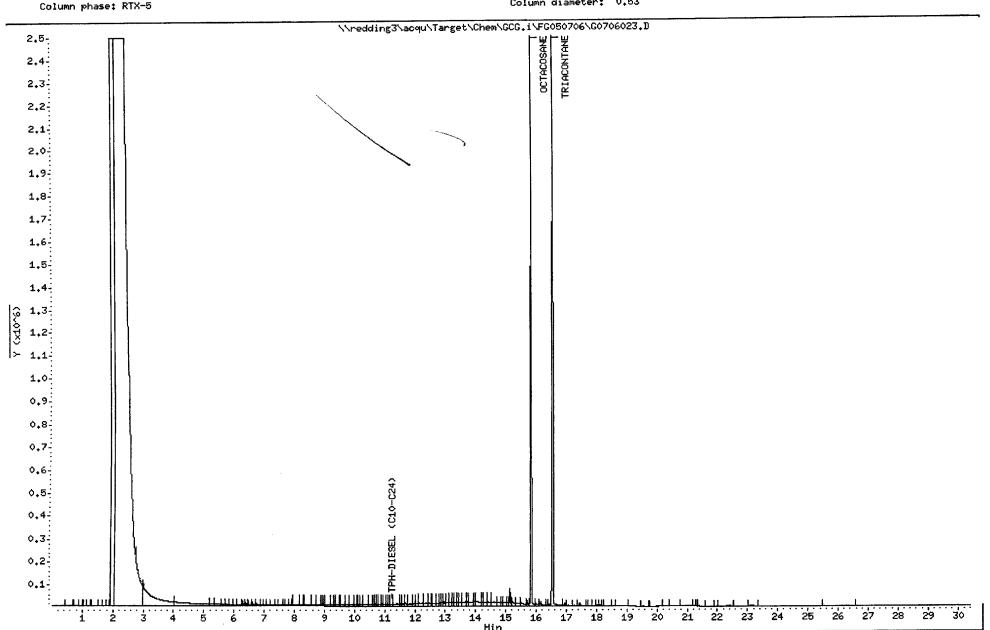
SW846 SW8015

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050706\G0706023.D

Bate : 07-JUL-2005 02:22 Client ID: P13SCGW15F Sample Info: DF094007 Purge Volume: 1.0

Instrument: GCG.i

Operator:



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW14F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094008

Matrix: WATER

Level: LOW

Lab File ID: G0707006

Sample Wt/Vol: 1.000 L

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 10.0

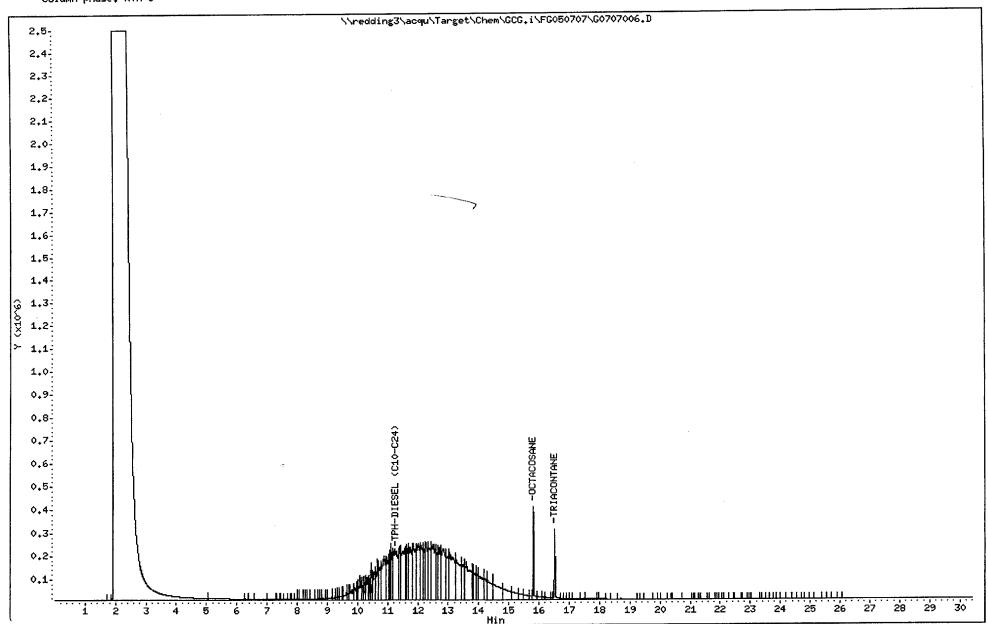
CAS NO.	COMPOUND	Units: mg/L	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL (C10	-C24)	0.18	1.0	13	

Data File: \\redding3\acqu\\target\Chem\GCG.i\FG050707\G0707006.D

Date: 07-JUL-2005 13:20 Client ID: P13SCGW14F Sample Info: DF094008 Purge Volume: 1.0 Column phase: RTX-5

Instrument: GCG.i

Operator:



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW1408F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094009

Matrix: SOIL

Level: LOW Lab File ID:

F0707012

Sample Wt/Vol: 49.4 G

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/21/05

% Moisture: not dec. 21

Date Analyzed: 07/07/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL (C	10-C24)	0.81	13	5.3	J

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050707\F0707012.D

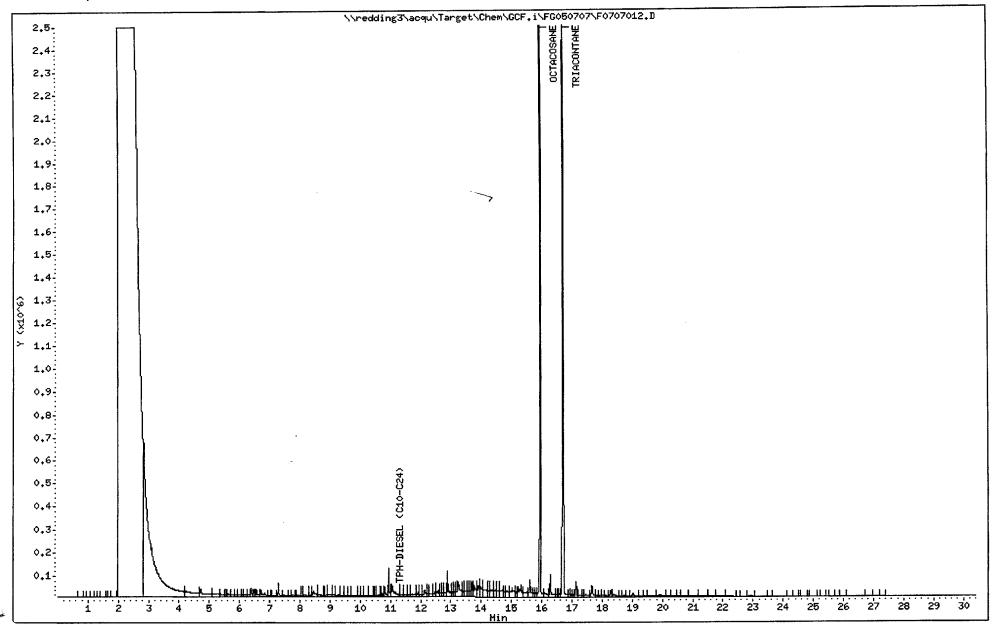
Date : 07-JUL-2005 17:20 Client ID: P13SCGW1408F Sample Info: DF094009

Instrument: GCF.i

Operator: -

Column diameter: 0.53

Column phase: RTX-5



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW16F

Case No.:

SDG No.: DF094

Lab Sample ID: DF094010

Matrix: WATER

Level: LOW Lab File ID:

G0706025

Sample Wt/Vol: 1.010 L

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed:

07/07/05

Extraction Type: SEP FUNNEL

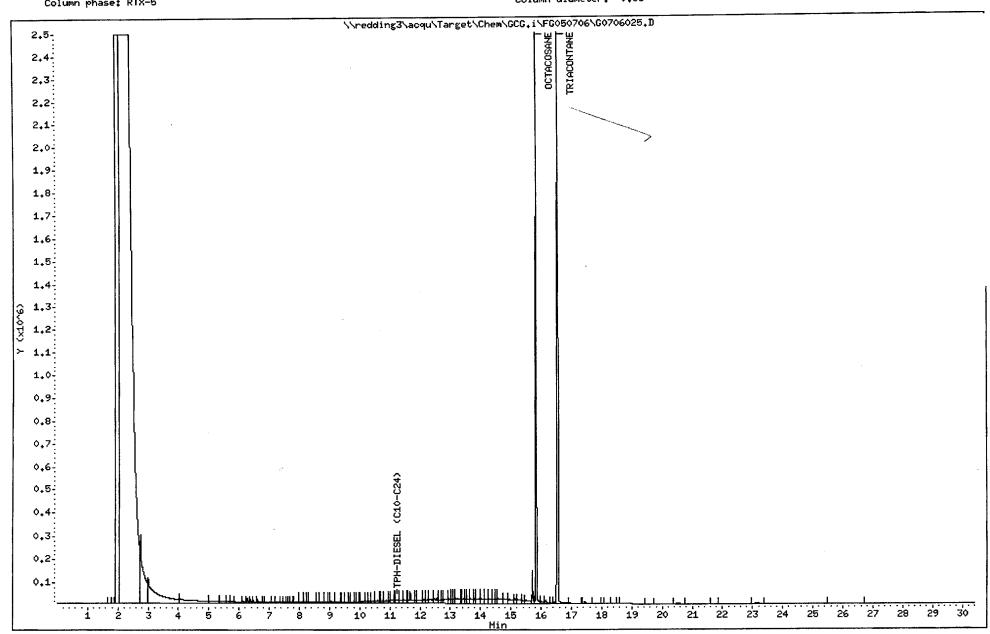
Dilution Factor: 1.0

Units: mg/L  $\mathtt{MDL}$ RLRESULT Q CAS NO. COMPOUND PHCC10C24---TPH-DIESEL (C10-C24) 0.018 0.10 0.14

Data File: \redding3\acc Date : 07-JUL-2005 03:42 Client ID: P13SCGW16F Sample Info: DF094010 Purge Volume: 1.0 Column phase: RTX-5

Instrument: GCG.i

Operator: -



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW07F

Case No.:

SDG No.: DF094

Lab Sample ID:

DF094011

Matrix:

WATER

LOW Level:

Lab File ID:

G0706026

Sample Wt/Vol: 1.010 L

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed:

07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

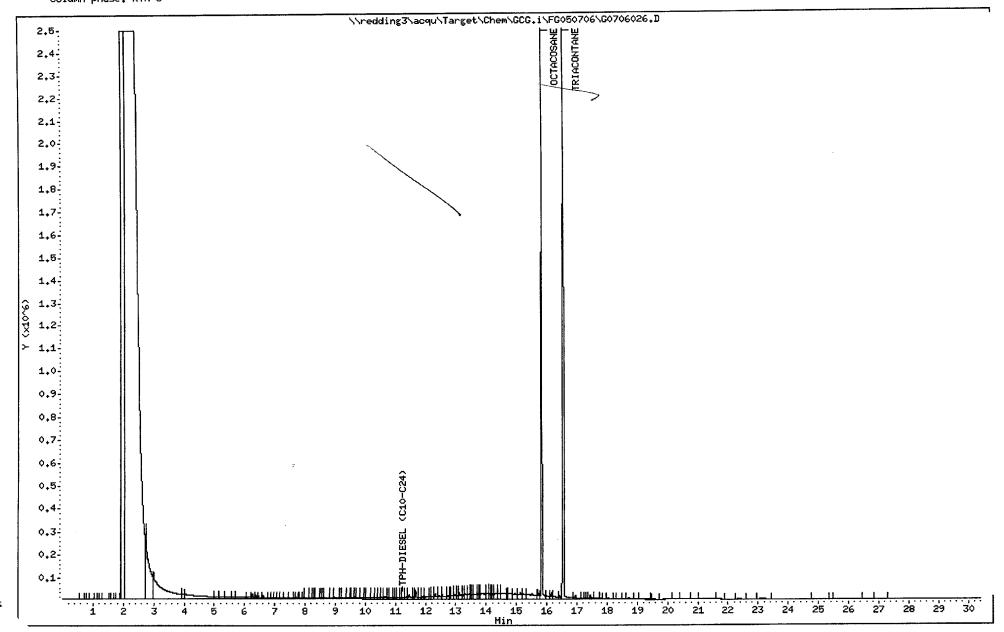
CAS NO. COMPOUND Units: mg/L  $\mathtt{MDL}$ RLRESULT Q PHCC10C24---TPH-DIESEL (C10-C24) 0.018 0.10 0.12

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050706\G0706026.D

Date: 07-JUL-2005 04:21 Client ID: P13SCGW07F Sample Info: DF094011 Purge Volume: 1.0 Column phase: RTX-5

Instrument: GCG.i

Operator:



P13SCGW1111F

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Lab Sample ID: DF094012

Matrix: SOIL Level:

LOW

Lab File ID:

F0707016

Sample Wt/Vol: 50.8 G

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/21/05

% Moisture: not dec. 21

Date Analyzed: 07/07/05

Extraction Type: SONICATION

Dilution Factor: 100.0

CAS NO.	COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24	TPH-DIESEL (C	10-C24)	80	1200	4200	

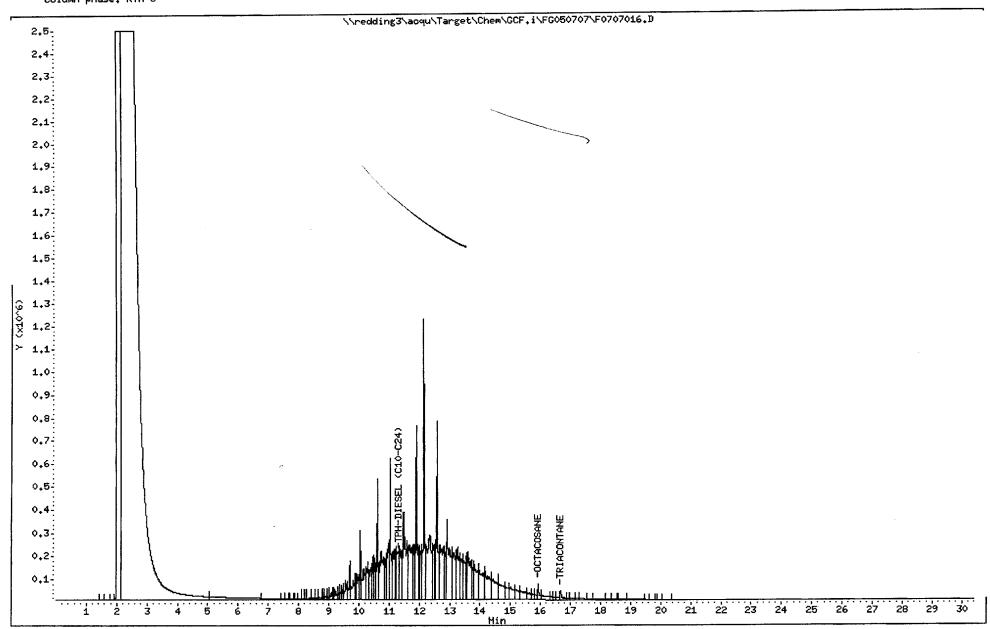
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050707\F0707016.D

Date : 07-JUL-2005 20:00 Client ID: P13SCGW1111F Sample Info: DF094012

Column phase: RTX-5

Instrument: GCF.i

Operator: .



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

P13SCGW1111R

Case No.:

SDG No.: DF094

Lab Sample ID: DF094013

Matrix: WATER

Level: LOW

Lab File ID:

G0706027

Sample Wt/Vol: 0.790 L

Date Collected: 06/07/05

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

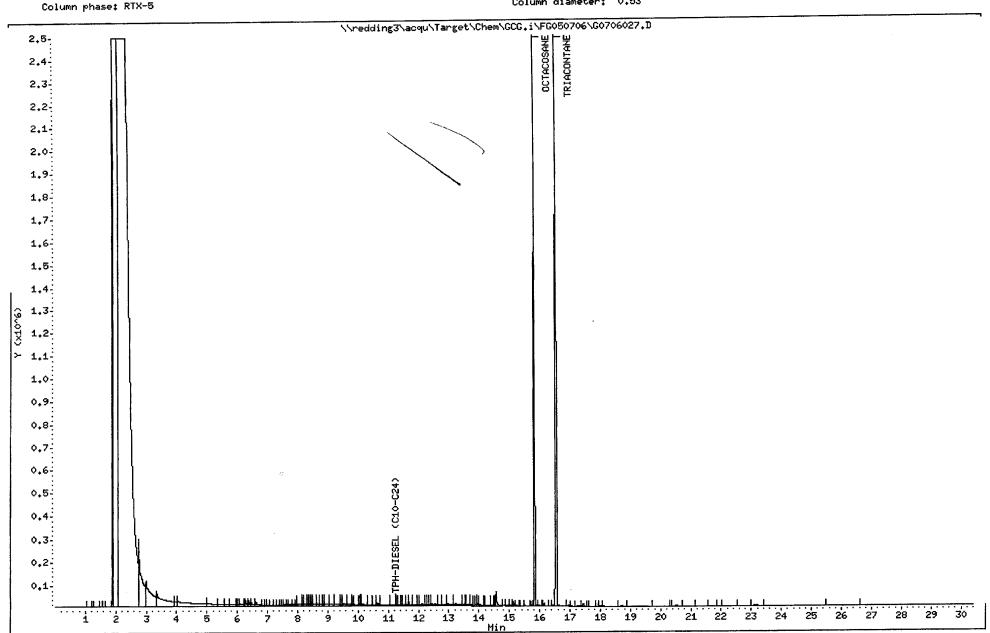
CAS NO.	COMPOUND	Units: mg/L	MDL	RL	RESULT	Q
PHCC10C24	-TPH-DIESEL ((	C10-C24)	0.023	0.13	0.095	J

Data File: \\redding3\acqu\Target\Chem\GCG.i\FG050706\G0706027.D

Date : 07-JUL-2005 05:02 Client ID: P13SCGW1111R Sample Info: DF094013 Purge Volume: 0.8

Instrument: GCG.i

Operator: ..



QC Summary

Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050707\F0707010.D

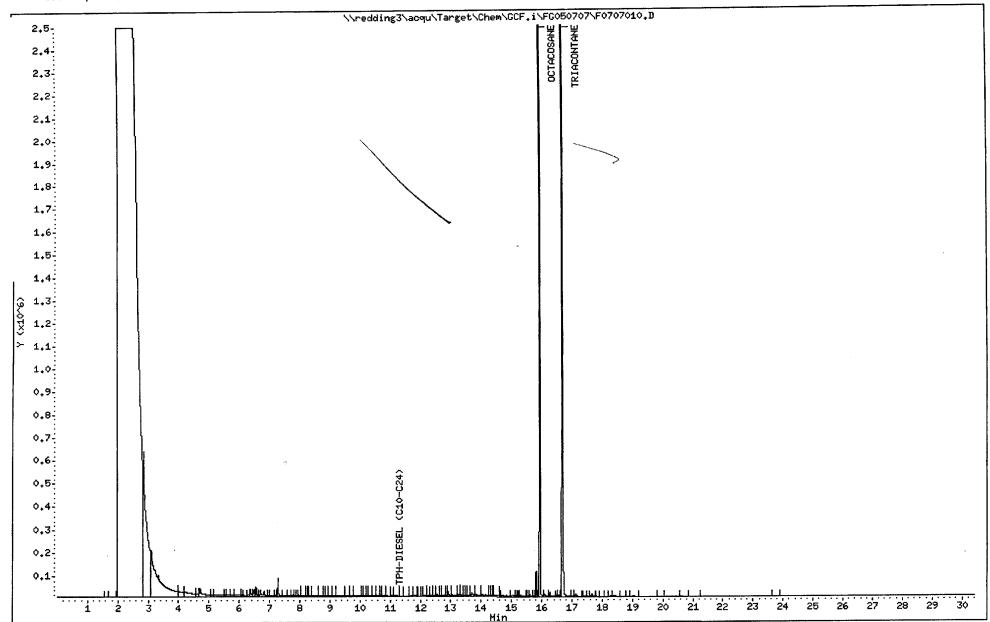
Date : 07-JUL-2005 16:00 Client ID: DWB10621

Sample Info: DSB10621

Column phase: RTX-5

Instrument: GCF.i

Operator: .

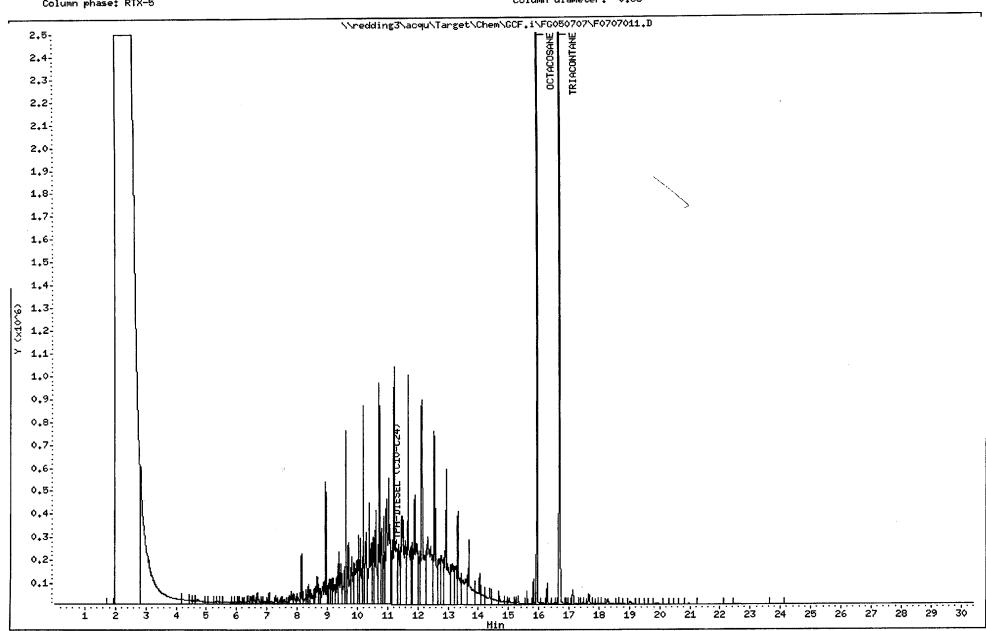


Data File: \\redding3\acq Date : 07-JUL-2005 16:40 Client ID: DSB10621LCS Sample Info: DSB10621LCS

Column phase: RTX-5

Instrument: GCF.i

Operator: -

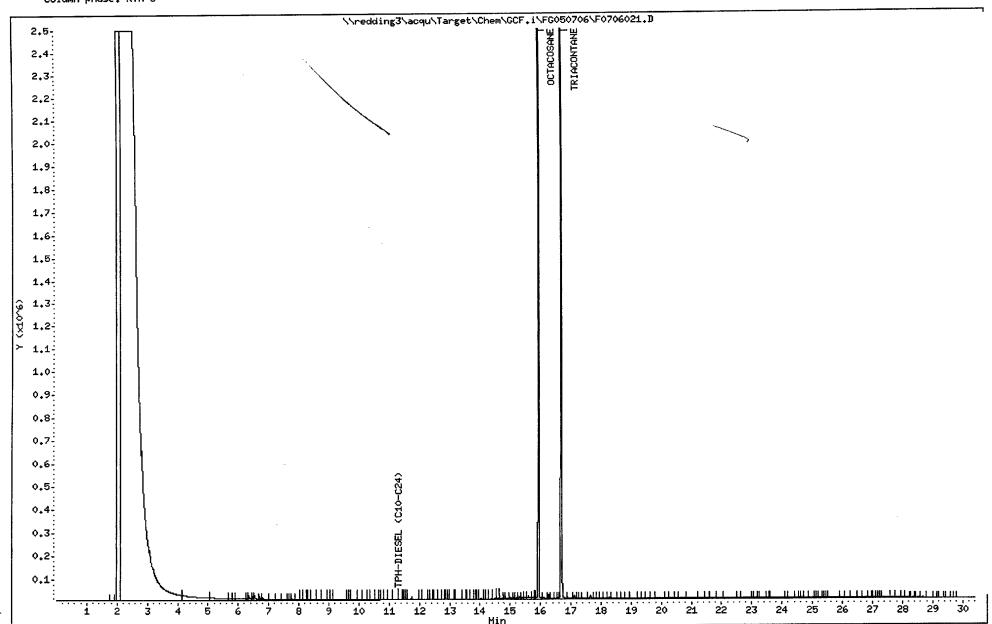


Data File: \\redding3\acq Date : 07-JUL-2005 01:02

Client ID: DWB10603
Sample Info: DWB10603
Purge Volume: 1.0
Column phase: RTX-5

Instrument: GCF.i

Operator:

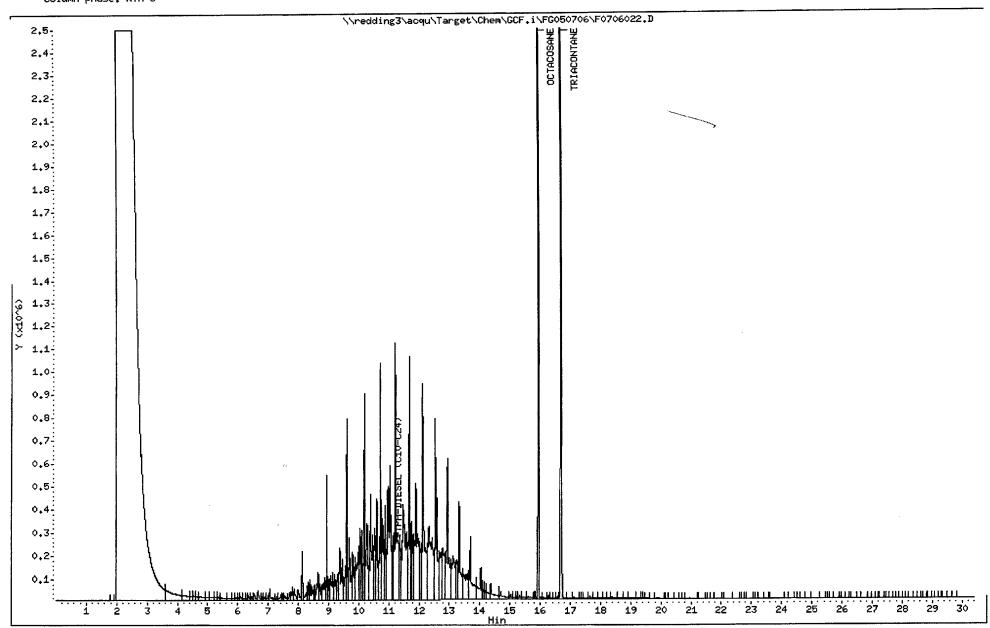


Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050706\F0706022.D

Date: 07-JUL-2005 01:42 Client ID: DWB10603LCS Sample Info: DWB10603LCS

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCF.i

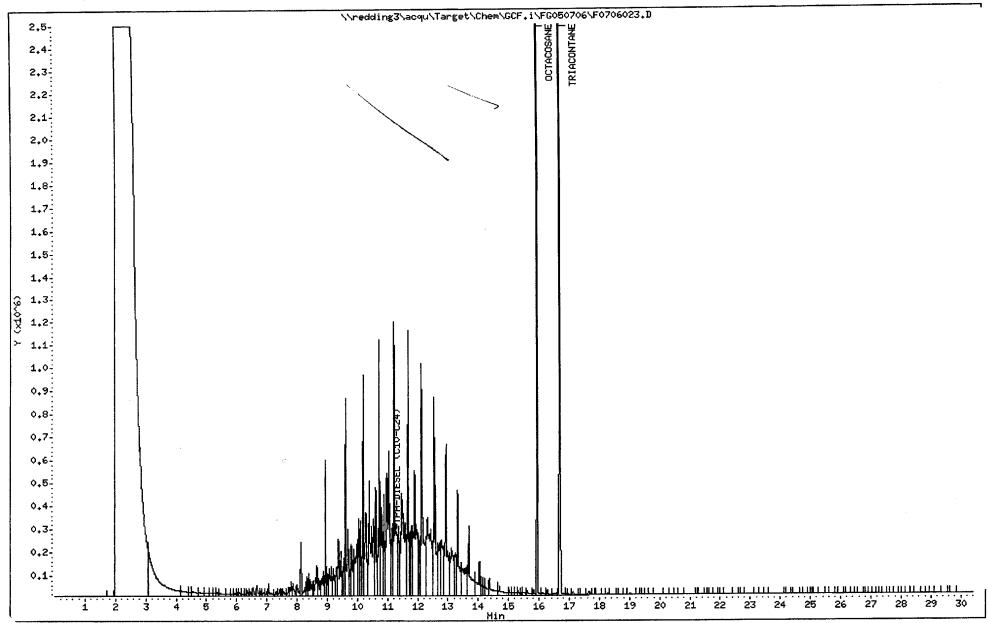
Operator: -



Data File: \\redding3\acquebacquebate: 07-JUL-2005 02:22 Client ID: DWB10603LCSD Sample Info: DWB10603LCSD Purge Volume: 1.0

Purge Volume: 1.0 Column phase: RTX-5 Instrument: GCF.i

Operator:



Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050707\F0707013.D

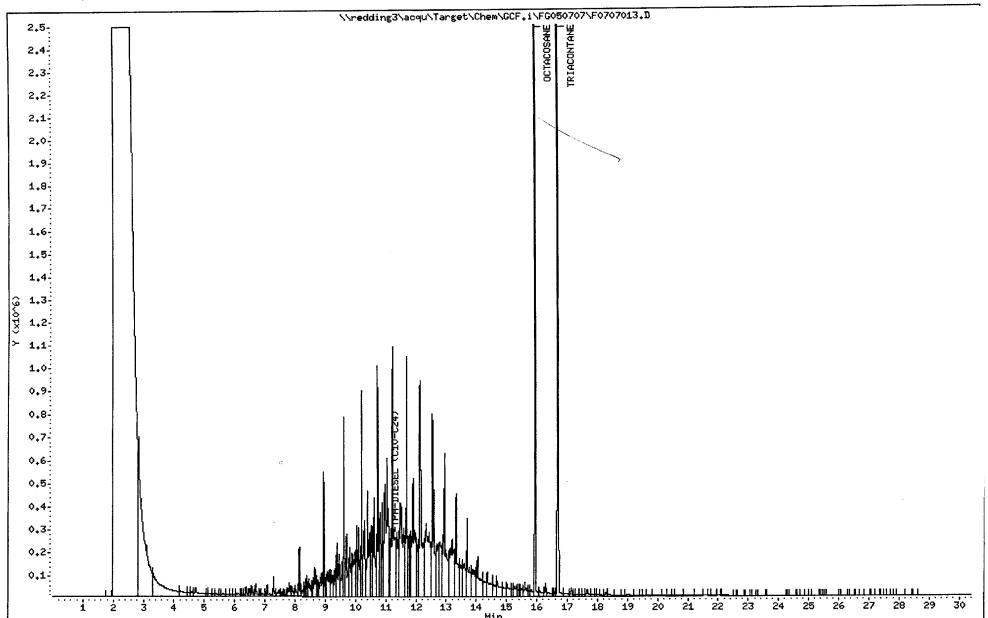
Date : 07-JUL-2005 18:00 Client ID: P13SCGW1408FMS Sample Info: DF094009MS

Instrument: GCF.i

Operator: ..

Column diameter: 0.53

Column phase: RTX-5



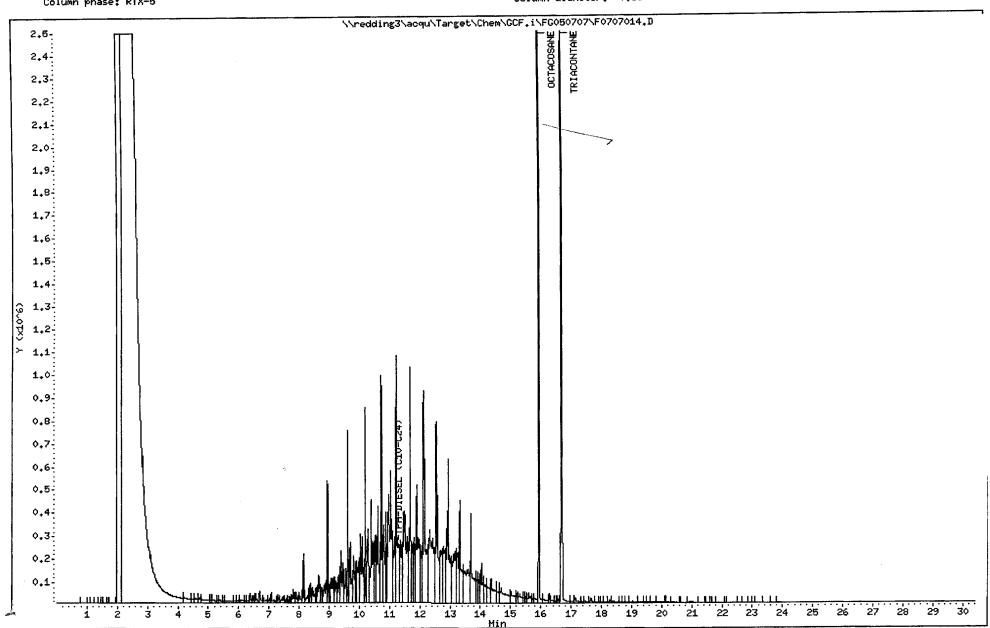
Data File: \\redding3\acqu\Target\Chem\GCF.i\FG050707\F0707014.D

Date : 07-JUL-2005 18:40 Client ID: P13SCGW1408FMSD Sample Info: DF094009MSD

Column phase: RTX-5

Instrument: GCF.i

Operator:



Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

DSB10621

Case No.:

SDG No.: DF094

Lab Sample ID:

DSB10621

Matrix: SOIL Level:

LOW

Lab File ID:

F0707010

Sample Wt/Vol: 50.0 G

Date Collected:

Extract Vol: 1 ML

Date Extracted: 06/21/05

Date Analyzed: 07/07/05

Extraction Type: SONICATION

Dilution Factor: 1.0

CAS NO. COMPOUND	Units: mg/Kg	MDL	RL	RESULT	Q
PHCC10C24TPH-DIESEL	(C10-C24)	0.63	10	1.3	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT ID.

DWB10603

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Lab Sample ID:

DWB10603

Matrix: WATER Level:

LOW

Lab File ID:

F0706021

Sample Wt/Vol: 1.000 L

Date Collected:

Extract Vol:

1 ML

Date Extracted: 06/13/05

Date Analyzed: 07/07/05

Extraction Type: SEP FUNNEL

Dilution Factor: 1.0

CAS NO.	COMPOUND	Units: mg/L	MDL	RL	RESULT	Q
PHCC10C24-	TPH-DIESEL (	C10-C24)	0.018	0.10	0.021	J

### 2C SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Level: LOW

			S1	CO	S3	TOT
				S2	53	_
	LAB ID	CLIENT ID.	(OCT)#	(TRI)#		OUT
	=========	=========	=====		=====	===
01	DSB10621	DSB10621	86	84		0
02	DSB10621LCS	DSB10621LCS	87	85		0
03	DF094009	P13SCGW1408F	92	90		Ö
		P13SCGW1408FMS	88	86		0
04	DF094009MS					
05	DF094009MSD	P13SCGW1408FMSD	86	84		0
06	DF094012	P13SCGW1111F	0D	0D		0
07						
08						
09						
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30			l	l	l	ll

 $\begin{array}{cccc} & & & & & & & \\ \text{S1 (OCT)} &= & \text{OCTACOSANE} & & & & & \\ \text{S2 (TRI)} &= & & & & & \\ \text{TRIACONTANE} & & & & & \\ \end{array} \tag{56-110}$ 

D Surrogates diruced out

page 1 of 1

SW846

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits

<sup>\*</sup> Values outside of contract required QC limits
D Surrogates diluted out

#### 2C WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

1			S1	S2	S3	TOT
	·				53	
	LAB ID	CLIENT ID.	(OCT)#	(TRI)#		OUT
	========	=======================================	=====	=====	=====	===
01	DWB10603	DWB10603	82	82		0
02	DF094006	P13SCGW12F	82	86		0
03	DWB10603LCS	DWB10603LCS	93	93		0
04	DF094007	P13SCGW15F	72	76		ŏ
05	DWB10603LCSD	DWB10603LCSD	101	101	<del></del>	ő
		P13SCGW16F	75	78		ő
06	DF094010					
07	DF094001	P13SCGW01F	94	93		0
80	DF094011	P13SCGW07F	75	79		0
09	DF094013	P13SCGW1111R	69	74		0
10	DF094003	P13SCGW13D	104	103		0
11	DF094008	P13SCGW14F	91	87		0
12	DF094005	P13SCGW11F	104	102		0
13	DF094004	P13SCGW10F	103	100		0
14	DF094002	P13SCGW13F	OD.	0D		ا ما
15	DF034002	1135001131	05	\ \mathcal{O}		
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30			l		l	II

QC LIMITS S1 (OCT) = OCTACOSANE (58-111)(54-109)S2 (TRI) = TRIACONTANE

FORM II SV-1

D Surrogates diluted out

page 1 of 1

SW846

<sup>#</sup> Column to be used to flag recovery values
\* Values outside of contract required QC limits

### SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Matrix Spike - Sample No.: P13SCGW1408F Level: LOW

COMPOUND	SPIKE	SAMPLE	MS	MS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	63.545	5.3297	56.857	81	65-135

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #	QC L: RPD	IMITS REC.
TPH-DIESEL (C10-C24)	63.089	55.570	80	2	30	65-135

RPD: 0 out of 1 outside limits Spike Recovery: 0 out of 2 outside limits

<sup>#</sup> Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

### SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

LCS - Sample No.: DSB10621

Level: LOW

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/Kg)	(mg/Kg)	(mg/Kg)	REC #	REC.
TPH-DIESEL (C10-C24)	50.000	N/A	39.945	80	65-135

# Column to be used to flag recovery and RPD values with an asterisk \* Values outside of QC limits

RPD: 0 out of 0 outside limits Spike Recovery: 0 out of 1 outside limits

### WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

LCS -

Sample No.: DWB10603

COMPOUND	SPIKE	SAMPLE	LCS	LCS	QC.
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
	(mg/L)	(mg/L)	(mg/L)	REC #	REC.
TPH-DIESEL (C10-C24)	2.5000	N/A	2.0707	83	65-135

COMPOUND	SPIKE ADDED (mg/L)	LCSD CONCENTRATION (mg/L)	LCSD % REC #	% RPD #	QC L: RPD	MITS REC.
TPH-DIESEL (C10-C24)	2.5000	2.2417	90	8	20	65-135

RPD: 0 out of 1 outside limits Spike Recovery: 0 out of 2 outside limits

<sup>#</sup> Column to be used to flag recovery and RPD values with an asterisk
\* Values outside of QC limits

#### 4B SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DSB10621

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Lab File ID:

F0707010

Lab Sample ID:

DSB10621

Date Extracted:

06/21/05

Extraction Type:

SONICATION

Date Analyzed:

07/07/05

Time Analyzed:

1600

Matrix:

SOIL

Level: (low/med)

LOW

Instrument ID:

GCF

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

;	CLIENT ID.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01 02 03 04 05 06	DSB10621LCS P13SCGW1408F P13SCGW1408FMS P13SCGW1408FMSD P13SCGW1111F	DSB10621LCS DF094009 DF094009MS DF094009MSD DF094012	F0707011 F0707012 F0707013 F0707014 F0707016	07/07/05 07/07/05 07/07/05 07/07/05 07/07/05
07 08 09				
10 11 12 13				
14 15 16				
17 18 19				
20 21 22 23				

#### 4B SEMIVOLATILE METHOD BLANK SUMMARY

Client ID.

DWB10603

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Lab File ID:

F0706021

Lab Sample ID: DWB10603

Date Extracted:

06/13/05

Extraction Type: SEP FUNNEL

Date Analyzed:

07/07/05

Time Analyzed:

0102

Matrix:

WATER

Level: (low/med)

LOW

Instrument ID:

GCF

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

		LAB	LAB	DATE
	CLIENT ID.	SAMPLE ID	FILE ID	ANALYZED
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 20 21 22 23	P13SCGW14F P13SCGW11F P13SCGW10F P13SCGW13F	DF094006 DWB10603LCS DF094007 DWB10603LCSD DF094010 DF094001 DF094013 DF094003 DF094008 DF094005 DF094004 DF094002	G0706022 F0706023 F0706025 F0706026 G0706026 G0706027 G0707005 G0707006 G0707009	07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05 07/07/05

Standards data

# SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

Instrument ID: GCF

ICAL Date(s): 07/06/05

Analyte Concentration:

	RRF0.1=F0706003.D RRF2.5=F0706006.D			RRF0.5=F0706004.D RRF4 =F0706007.D			
COMPOUND	RRF0.1	RRF0.5	RRF1	RRF2.5	RRF4		
TPH-DIESEL (C10-C24)	0.100	0.500	1.000	2.500	4.000		
OCTACOSANE TRIACONTANE	0.100	0.150 0.150	0.250 0.250	0.300	0.350 0.350		

## 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: SDG No.: DF094

Instrument ID: GCF

ICAL Date(s): 07/06/05

AB FILE ID: RRF0.1=F0706003.D RRF0.5=F0706004.D RF1 =F0706005.D RRF2.5=F0706006.D RRF4 =F0706007.D							
COMPOUND ====================================	RRF0.1 ===== 3490	RRF0.5 ===== 2999	RRF1 ====== 3054	RRF2.5 ===== 3051	RRF4 ====== 3072	RRF ====== 3133	%RSD ===== 6.4
OCTACOSANE TRIACONTANE	3025 3090	3175   3225 	3074 3118	3284   3333   ———	3157 3202	3143   3193 	3.2 3.0

RF's divided by 10000

#### 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA ANALYTE CONCENTRATIONS

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: SDG No.: DF094

Instrument ID: GCG

ICAL Date(s): 07/06/05

Analyte Concentration:

<del></del>	RRF0.1=G0706003.D RRF2.5=G0706006.D			30706004 30706007	
COMPOUND	RRF0.1	RRF0.5	RRF1	RRF2.5	RRF4
TPH-DIESEL (C10-C24)	0.100	0.500	1.000	2.500	4.000
OCTACOSANE TRIACONTANE	0.100	0.150 0.150	0.250 0.250	0.300	0.350

# 6C SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.: SDG No.: DF094

Instrument ID: GCG

ICAL Date(s): 07/06/05

LAB FILE ID: RRF1 =G0706005.D	RRF0.1=G0706003.D RRF0.5=G0706004.D RRF2.5=G0706006.D RRF4 =G0706007.D							
COMPOUND ====================================	=====	RRF0.1 ===== 4070	RRF0.5 ===== 3024	RRF1 ===== 3384	RRF2.5 ===== 2977	RRF4 ====== 3422	RRF ====== 3375	%RSD ===== 13.0
OCTACOSANE TRIACONTANE		2594 2702	2680 2815	3037 3098	3267 3189	3716  3661 	3059 3093 ———	14.9 12.1

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.:

SDG No.: DF094

Lab File ID: F0706008

CCV Date/Time:

07/06/05

1625

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	3136	AVG	0.1	15.0
OCTACOSANE TRIACONTANE	3143 3193	3309 3360	AVG AVG	5.3 5.2	15.0 15.0

RF's divided by 10000

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF Case No.:

SDG No.: DF094

Lab File ID: F0706020

CCV Date/Time: 07/07/05

0022

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	2994	AVG	-4.4	15.0
OCTACOSANE TRIACONTANE	3143 3193	3197 3280	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF Case No.:

SDG No.: DF094

Lab File ID: F0706030

CCV Date/Time:

07/07/05

0701

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	3044	AVG	-2.8	15.0
OCTACOSANE TRIACONTANE	3143 3193	3331 3397	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.:

SDG No.: DF094

Lab File ID: G0706008

CCV Date/Time:

07/06/05

1625

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3127	AVG	-7 <b>.</b> 4	15.0
OCTACOSANE TRIACONTANE	3059 3093	2906 3011	AVG AVG	-5.0 -2.7	15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.:

SDG No.: DF094

Lab File ID: G0706019

CCV Date/Time:

07/06/05

2343

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3083	AVG	-8.7	
OCTACOSANE TRIACONTANE	3059 3093	2706 2830	AVG AVG	-11.5 -8.5	15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.:

SDG No.: DF094

0621

1301

ICAL Date/Time (1st pt): 07/06/05

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	2988	AVG	-11.5	15.0
OCTACOSANE TRIACONTANE	3059 3093	3224 3161	AVG AVG		15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.:

SDG No.: DF094

Lab File ID: G0707002

CCV Date/Time:

07/07/05

1041

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3036	AVG	-10.0	15.0
OCTACOSANE TRIACONTANE	3059 3093	2751 2852	AVG AVG	-10.0 -7.8	

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCG

Case No.:

SDG No.: DF094

Lab File ID: G0707010

CCV Date/Time:

07/07/05

1600

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3375	3025	AVG	-10.4	15.0
OCTACOSANE TRIACONTANE	3059 3093	3351 3279	AVG AVG	1	15.0 15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF Case No.:

SDG No.: DF094

Lab File ID: F0707009

CCV Date/Time:

07/07/05

1520

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF2.5	CURVE TYPE	%D	MAX %D
TPH-DIESEL (C10-C24)	3133	2991	AVG	-4.5	15.0
OCTACOSANE TRIACONTANE	3143 3193	3248 3257	AVG AVG		15.0

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Instrument ID: GCF

Case No.:

SDG No.: DF094

Lab File ID: F0707019

CCV Date/Time: 07/07/05 2159

ICAL Date/Time (1st pt): 07/06/05

1301

ICAL Date/Time (Last pt): 07/06/05

1541

COMPOUND	RRF	RRF1	CURVE	%D :	MAX ∵%Dः 
TPH-DIESEL (C10-C24)	3133	3005	AVG	-4.1	15.0
OCTACOSANE TRIACONTANE	3143 3193	2942 2786	AVG AVG	-6.4 -12.8	15.0 15.0

# SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 07/06/05 07/06/05

Instrument ID: GCF

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
01 02	DSTD1	DSTD1	07/06/05 07/06/05	1301 1341
02	DSTD2 DSTD3	DSTD3	07/06/05	1421
04	DSTD4	DSTD4	07/06/05	1501
05	DSTD5	DSTD5	07/06/05	1541
06	QCALTSTD	QCALTSTD	07/06/05	1625
07	DSTD3	DSTD3	07/07/05	0022
08	DWB10603	DWB10603	07/07/05	0102
09 10	DWB10603LCS DWB10603LCSD	DWB10603LCS DWB10603LCSD	07/07/05 07/07/05	0142 0222
	P13SCGW01F	DF094001	07/07/05	0421
12	DSTD4	DSTD4	07/07/05	0701
13	DSTD4	DSTD4	07/07/05	1520
14	DSB10621	DSB10621	07/07/05	1600
15	DSB10621LCS	DSB10621LCS	07/07/05	1640
	P13SCGW1408F	DF094009	07/07/05	1720
17 18	P13SCGW1408FMS P13SCGW1408FMSD	DF094009MS DF094009MSD	07/07/05 07/07/05	1800 1840
	P13SCGW1400FMSD P13SCGW1111F	DF094009M3D	07/07/05	2000
20	DSTD3	DSTD3	07/07/05	2159
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31				
32		l		

#### 8D SEMIVOLATILE ANALYTICAL SEQUENCE

Lab Name: COLUMBIA ANALYTICAL SERVICES - REDDING

Case No.:

SDG No.: DF094

GC Column: RTX-5 ID: 0.53 (mm) ICAL Date(s): 07/06/05 07/06/05

Instrument ID: GCG

	CLIENT	LAB	DATE	TIME
	SAMPLE ID	SAMPLE ID	ANALYZED	ANALYZED
			========	========
01	DSTD1	DSTD1	07/06/05	1301
02	DSTD2	DSTD2	07/06/05	1341
03 04	DSTD3	DSTD3	07/06/05	1421
05	DSTD4 DSTD5	DSTD4 DSTD5	07/06/05 07/06/05	1501
06	QCALTSTD	OCALTSTD	07/06/05	1541 1625
07	DSTD3	DSTD3	07/06/05	2343
08	P13SCGW12F	DF094006	07/07/05	0142
09	P13SCGW15F	DF094007	07/07/05	0222
10	P13SCGW16F	DF094010	07/07/05	0342
11	P13SCGW07F	DF094011	07/07/05	0421
12	P13SCGW1111R	DF094013	07/07/05	0502
13	DSTD4	DSTD4	07/07/05	0621
14	DSTD3	DSTD3	07/07/05	1041
	P13SCGW13D	DF094003	07/07/05	1240
16	P13SCGW14F	DF094008	07/07/05	1320
17	P13SCGW11F	DF094005	07/07/05	1400
18 19	P13SCGW10F P13SCGW13F	DF094004	07/07/05	1440
20	DSTD4	DF094002 DSTD4	07/07/05 07/07/05	1520
21	7010 <del>4</del>	υδ1υ <del>4</del>	0//0//05	1600
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